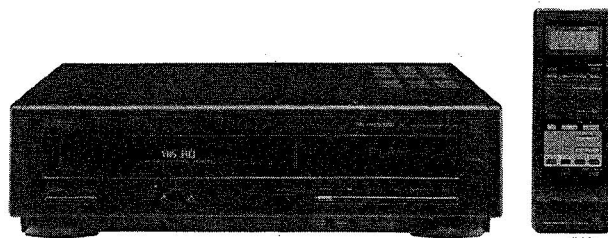


Service
Service
Service



Service Manual



PAL/MESECAM

VR3360/95 is a video cassette recorder with a TV-reception part and electronic timer, suitable for recording and playing back TV-signals which meet the CCIR-PAL and MESECAM TV-standard. The signals are recorded on tape according to the VHS-standard.

The VR3360/95 is equal to the VR3260/95, however with an L.C.D.-I.R.-Remote Control transmitter.

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For the technical data, reference is made to the Service Manual VR3260/67/95. The present Manual only states the differences.

I.R.-Remote Control VR3360/95 Servicecodenumber : 4822 218 30579

SPECIFICATIONS

Format : VHS PAL standard
 Video recording system : Two rotary head helical scan system
 Video signal : PAL/SECAM colour and B/G,D/K signals
 625 lines
 Recording playing time : 4 hours max. with E-240 tape
 Tape width : 12.7 mm
 Tape speed : 23.39 mm/sec.
 Antenna : 75 ohm unbalanced
 Receiving channel : VHF channel S1-S20 / E2-E12
 UHF channel E21-E69
 RF converter output signal : UHF channel E30-E39 (adjustable)
 Preset to channel E36
 Power requirement : AC 220V, 50Hz
 Power consumption : Approx. 26W
 Operating temperature : 5°C to 40°C
 Storage temperature : -20°C to 55°C
 Weight : 5.7 kg
 Dimensions : 360 mm (W) x 300 mm (D) x 99mm (H)

VIDEO

Input : 1.0 Vp-p, 75 ohm
 Output : 1.0 Vp-p, 75 ohm

AUDIO 0dB = 0.775 Vrms

Input : Line : -8dBs, more than 47k ohm
 Output : Line : -8dBs, less than 1k ohm

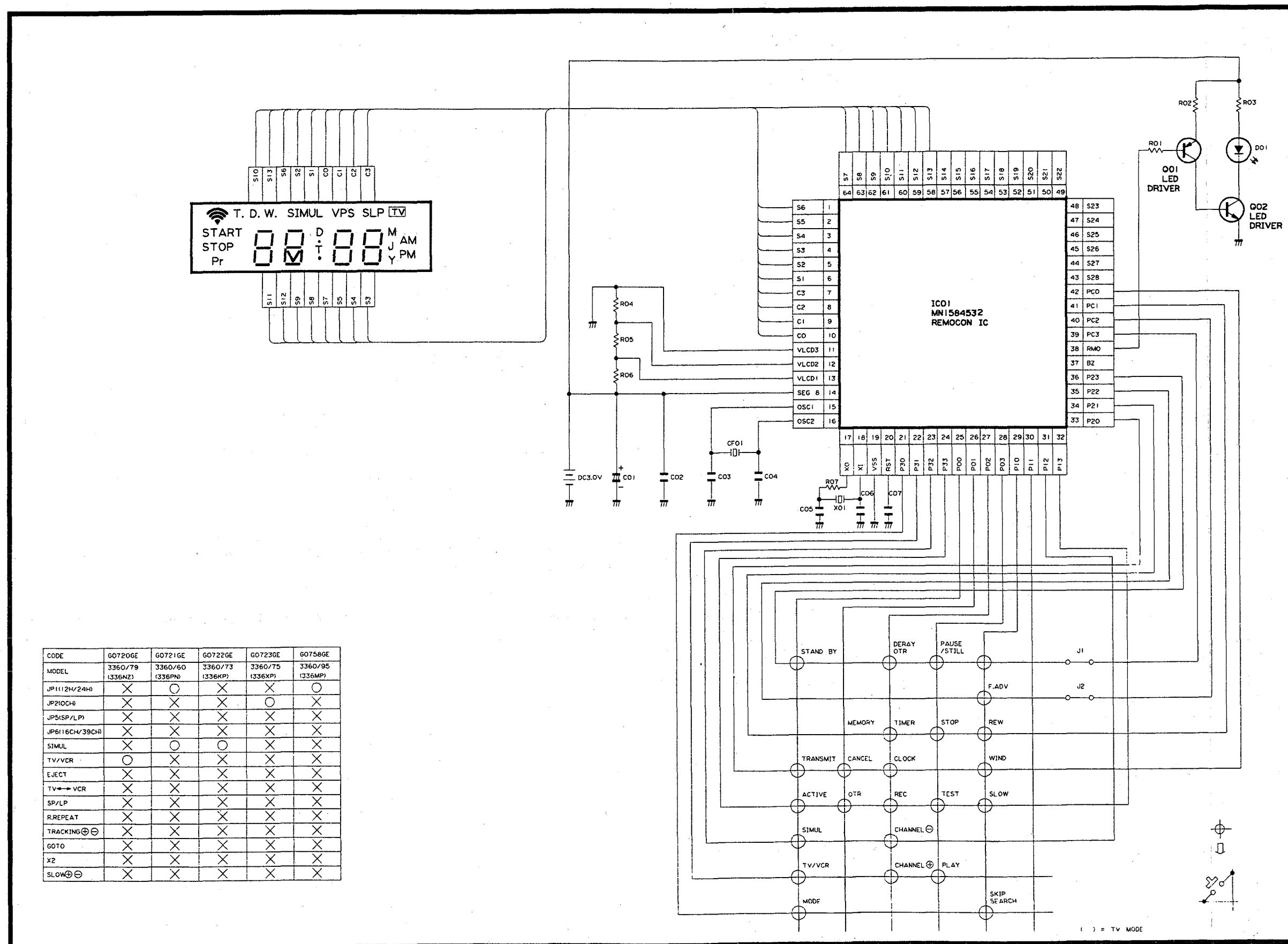
Accessories included : Antenna 75 ohm coaxial connector cable
 (plug provided)
 Operation Manual
 L.C.D.- Infrared remote control
 Battery

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

Note :

The antenna must correspond to the new standard DIN 45325 (IEC 169-2) for combined UHF/VHF antenna with 75 ohm connector.

L.C.D.- INFRARED REMOTE CONTROL CIRCUIT DIAGRAM



PARTS LIST VR3360/95**FRONT PANEL PARTS**

501	4822 443 40979	FRONT PANEL ASS'Y
501-1	4822 410 60983	STANDBY BUTTON ASS'Y
501-2	4822 410 60984	MODE BUTTON ASS'Y
501-3	4822 443 63195	R/C COVER
501-4	4822 459 11018	BRAND BADGE
501-5	4822 443 63197	CASSETTE FLAP
501-6	4822 443 63198	DISPLAY COVER
501-7	4822 410 60986	TRACKING BUTTON
501-8	4822 410 60989	TUNING BUTTON
501-9	4822 410 60991	CHANNEL BUTTON
501-10	4822 403 70189	SHAFT HOLDER, RIGHT
501-11	4822 403 70191	SHAFT HOLDER, LEFT
501-12	4822 492 70373	SPRING, FLAP
501-13	4822 492 70798	EARTH SPRING
501-14	4822 502 12853	SCREW
501-15	4822 459 80712	INDICATION PLATE

MECHANICAL PARTS

601	4822 464 50818	MAIN FRAME
602	4822 443 40975	UPPER CABINET
603	4822 443 51205	BOTTOM PLATE
604	4822 443 63196	ANTENNA TERMINAL COVER
605	4822 256 91547	LED HOLDER, STANDBY
606	4822 256 91345	HOLDER, POWER
607	4822 256 91735	HOLDER, FLUORESCENT
		DISPLAY TUBE
608	4822 403 70192	HOLDER, RF CONVERTER
610	4822 466 82753	EARTH PLATE
612	4822 502 12993	SCREW
613	4822 502 12542	SCREW
614	4822 502 13157	SCREW
616	4822 502 13707	SCREW
617	4822 502 11774	SCREW
618	4822 503 11061	SCREW
620	4822 502 13697	SCREW
621	4822 466 82764	EARTH PLATE

MISCELLANEOUS

4822 321 23101	ANTENNA COAXIAL CABLE
4822 218 30579	L.C.D.-I.R.- REMOTE CONTROL

MAIN CIRCUIT

					
Q201	4822 130 42319	2SD471-KL	IC1451	4822 209 10892	RH-IX0203GEZZ
Q206	4822 130 60146	DTC144EK	IC2201	4822 209 72016	VHIBA7021/-1
Q207	4822 130 60147	2C1740SQR	IC5501	4822 209 63308	VHIBA7025L/-1
Q208	4822 130 61269	2SA1037KQ			
Q209	4822 130 61272	2SC2412KQ			
Q210	4822 130 61272	2SC2412KQ	D201	4822 130 80552	HZS6
Q501	4822 130 42319	2SD471-KL	D202	4822 130 80969	1N4531
Q502	4822 130 61272	2SC2412KQ	D501	4822 130 80552	HZS6
Q503	4822 130 61272	2SC2412KQ	D502	4822 130 80969	1N4531
Q504	4822 130 61272	2SC2412KQ	D503	4822 130 80969	1N4531
Q505	4822 130 61272	2SC2412KQ	D505	4822 130 80969	1N4531
Q506	4822 130 60146	DTC144EK	D702	4822 130 80969	1N4531
Q507	4822 130 60146	DTC144EK	D703	4822 130 80969	1N4531
Q508	4822 130 61272	2SC2412KQ	D704	4822 130 80969	1N4531
Q509	4822 130 60148	2SA933SQR	D705	4822 130 80969	1N4531
Q511	4822 130 60146	DTC144EK	D706	4822 130 80969	1N4531
Q512	4822 130 60146	DTC144EK	D707	4822 130 80969	1N4531
Q513	4822 130 60146	DTC144EK	D708	4822 130 80969	1N4531
Q602	4822 130 61835	2SC3939SQR	D801	4822 130 80969	1N4531
Q701	4822 130 61269	2SA1037KQ	D802	4822 130 80969	1N4531
Q702	4822 130 61269	2SA1037KQ	D803	4822 130 80969	1N4531
Q703	4822 130 60148	2SA933SQR	D952	4822 130 80413	HZS6.2EB3
Q704	4822 130 61272	2SC2412KQ	D954	4822 130 80411	ERA15-02
Q705	4822 130 61269	2SA1037KQ	D956	4822 130 80969	1N4531
Q706	4822 130 61269	2SA1037KQ	D957	4822 130 80969	1N4531
Q707	4822 130 60147	2C1740SQR	D959	4822 130 32668	RD5.6EB2
Q708	4822 130 61272	2SC2412KQ	D2201	4822 130 80685	HZS15EB2
Q709	4822 130 61272	2SC2412KQ	D2202	4822 130 80685	HZS15EB2
Q710	4822 130 60146	DTC144EK	D4401	4822 130 80685	HZS15EB2
Q801	4822 130 60147	2C1740SQR	D4402	4822 130 80685	HZS15EB2
Q802	4822 130 60147	2C1740SQR	D5501	4822 130 80969	1N4531
Q803	4822 130 60147	2C1740SQR	D5502	4822 130 80969	1N4531
Q804	4822 130 60258	2SC2001LK			
Q951	4822 130 42386	2SA988			
Q953	4822 130 60151	2SB1117KU	C204	4822 124 41038	3.3μF 50V ELECTR.
Q954	4822 130 60146	DTC144EK	C225	4822 121 42216	0.022μF MYLAR
Q955	4822 130 60151	2SB1117KU	C254	4822 124 40864	100μF 6.3V ELECTR.
Q956	4822 130 60146	DTC144EK	C508	4822 122 33264	0.1μF 16V ELECTR.
Q957	4822 130 61272	2SC2412KQ	C515	4822 121 42216	0.022μF MYLAR
Q1451	4822 130 42803	2SC383-WT	C521	4822 121 42216	0.022μF MYLAR
Q1556	4822 130 60146	DTC144EK	C604	4822 121 43369	0.012μF MYLAR
Q4401	4822 130 61269	2SA1037KQ	C608	4822 121 42381	1500pF MYLAR
Q5501	4822 130 61272	2SC2412KQ	C610	4822 124 40865	100μF 10V ELECTR.
Q5502	4822 130 60146	DTC144EK	C616	4822 121 42223	0.015μF MYLAR
Q6601	4822 130 42594	DTC144ES	C623	4822 121 51391	5600pF 100V POLYPRO.
Q6602	4822 130 41607	2SD655-DE	C627	4822 124 41037	1μF 50V ELECTR.
Q6603	4822 130 41607	2SD655-DE	C629	4822 121 43369	0.012μF MYLAR
Q6604	4822 130 42682	DTA144ES	C714	4822 124 22486	47μF 10V ELECTR.
Q8801	4822 130 42278	2SA950-Y	C715	4822 121 90043	4.7μF 50V ELECTR.
Q8804	4822 130 42278	2SA950-Y	C722	4822 124 41105	2.2μF 50V ELECTR.
Q8805	4822 130 42278	2SA950-Y	C730	4822 124 40864	100μF 6.3V ELECTR.
Q8809	4822 130 61272	2SC2412KQ	C733	4822 124 40864	100μF 6.3V ELECTR.
			C801	4822 124 41038	3.3μF 50V ELECTR.
IC201	4822 209 62425	VHIAN3248NK-1	C802	4822 124 40866	100μF 16V ELECTR.
IC202	4822 209 61539	VHILC8992/-1	C803	4822 126 10301	0.047μF 16V CERAMIC
IC501	4822 209 63307	RH-IX0964GEZZ	C1418	4822 121 42402	1000pF MYLAR
IC601	4822 209 63309	VHIBA7767AS-1	C1564	4822 124 40866	100μF 16V ELECTR.
IC701	4822 209 72477	VHILA7116/-1	C2201	4822 124 41037	1μF 50V ELECTR.
IC702	4822 209 63312	VHIXRA15218-1	C4401	4822 124 40866	100μF 16V ELECTR.
IC801	4822 209 63306	RH-IX0801GEZZ	C4403	4822 124 23502	470μF 6.3V ELECTR.
IC802	4822 209 82196	VHIBA6209/-1	C5503	4822 121 42128	0.027μF MYLAR
IC803	4822 209 63311	VHIPST529D2-1	C5506	4822 124 40866	100μF 16V ELECTR.
IC951	4822 209 72022	VHIUPC574JT-1	C5526	4822 124 40864	100μF 6.3V ELECTR.
IC1404	4822 209 61519	VHINJM2220S-1	C6606	4822 121 43816	8200pF MYLAR

			FILTERS		
R201	4822 101 30732	22k(B) PB LEVEL ADJ.	FL201	4822 157 53147	FILTER
R202	4822 100 11222	470(B) DELAY LEVEL ADJ.	FL501	4822 157 52771	FILTER
R203	4822 101 30732	22k(B) EE LEVEL ADJ.	FL502	4822 157 60372	FILTER
R204	4822 101 30728	4.7k(B) DEV. ADJ.	FL5501	4822 154 10048	FILTER 4.5MHz
R205	4822 101 30731	10k(B) FM CARR. ADJ.	DELAY LINE		
R206	4822 101 30731	10k(B) W CLIP ADJ.	DL501	4822 320 40215	DELAY LINE
R208	4822 100 11223	1k(B) REC Y LEVEL ADJ.			
R504	4822 101 30729	2.2k(B) REC C LEVEL ADJ.	T601	4822 146 21365	TRANSFORMER
R610	4822 100 11278	10k(B) PB LEVEL ADJ.			
R630	4822 100 11384	470k(B) BIAS ADJ.	X501	4822 242 73866	CRYSTAL
R757	4822 101 30733	100k(B) PG M.M.	X801	4822 242 73867	CRYSTAL
			MISCELLANEOUS		
R751	4822 116 80989	27kΩ 1/8W METAL OXYDE	4822 214 33155		
R752	4822 116 80989	27kΩ 1/8W METAL OXYDE	4822 210 10408		
			4822 214 33154		
L201	4822 157 10271	68μH	J6601	4822 267 31272	JACK AUDIO IN OUT
L203	4822 157 10135	220μH	TP501	4822 265 40331	PLUG 3 PIN
L204	4822 157 10235	56μH	TP601	4822 267 20245	PLUG 2 PIN
L205	4822 157 53154	33μH	TP4401	4822 265 40331	PLUG 3 PIN
L207	4822 157 10242	47μH	TP6601	4822 265 40331	PLUG 3 PIN
L208	4822 157 10267	15μH	AB	4822 267 51065	SOCKET 8 PIN
L211	4822 157 10266	120μH	AC	4822 265 30422	PLUG 3 PIN
L212	4822 157 10271	68μH	AD	4822 267 51063	SOCKET 10 PIN
L213	4822 157 10274	150μH	AF	4822 267 51066	SOCKET 8 PIN
L215	4822 157 10276	220μH	AM	4822 267 60297	SOCKET 19 PIN
L501	4822 157 53278	18μH	AN	4822 267 40805	SOCKET 6 PIN
L502	4822 157 10268	3.3μH	AP	4822 267 51062	SOCKET 10 PIN
L503	4822 157 10267	15μH	AX	4822 265 40498	PLUG 5 PIN
L504	4822 157 10276	220μH	AY	4822 265 30419	PLUG 2 PIN
L505	4822 157 10276	220μH	AZ	4822 267 51061	SOCKET 7 PIN
L506	4822 157 10264	560μH			
L601	4822 157 10221	8.2mH			
L602	4822 157 60362	220μH			
L1451	4822 157 10232	12μH			
L1560	4822 157 10158	12μH			
L4401	4822 156 40881	220μH			
L4403	4822 157 10157	10μH			
L5501	4822 157 10135	220μH			
L5502	4822 157 10218	15mH			

TIMER CIRCUIT

			
Q5001	4822 130 61278	2SA1561	
Q5002	4822 130 42821	DTC124EL	
			
IC5001	4822 209 63301	RH-IX0594GEZZ	
IC5002	4822 209 73447	VHIPST52912-1	
IC5003	4822 209 63304	VHICAT93C46-1	
			
D5001	4822 130 80969	1N4531	
D5002	4822 130 80969	1N4531	
D5003	4822 130 80969	1N4531	
D5020	4822 130 80969	1N4531	
D5022	4822 130 80549	HZS9.1E	
D5023	4822 130 80969	1N4531	
D5025	4822 130 80969	1N4531	
D5028	4822 130 80417	PX0139GEZZ	
			
X5001	4822 242 72893	CRYSTAL	
FILTER			
FL5001	4822 242 73864	FILTER, 4MHz	
			
C5016	4822 124 23502	470μF 6.3V ELECTR.	
MISCELLANEOUS			
	4822 218 20829	I.R.-R.C.-RECEIVER	
DG5001	4822 130 90928	FLUORESCENT DISPLAY TUBE	
S5001	4822 271 30731	SWITCH, CHANNEL (-)	
S5002	4822 271 30731	SWITCH, CHANNEL (+)	
S5004	4822 271 30731	SWITCH, CLOCK	
S5005	4822 271 30731	SWITCH, TRACKING (-) /	
		MANUAL TUNING (-)	
S5006	4822 271 30731	SWITCH, TRACKING (+) /	
		MANUAL TUNING (+)	
S5008	4822 271 30731	SWITCH, CHANNEL PRESET	
S5012	4822 271 30731	SWITCH, COLOUR	
S5013	4822 271 30731	SWITCH, RECORD	
S5014	4822 271 30731	SWITCH, PAUSE	
S5015	4822 271 30731	SWITCH, FAST FORWARD	
S5016	4822 271 30731	SWITCH, PLAYBACK	
S5017	4822 271 30731	SWITCH, REWIND	
S5018	4822 271 30731	SWITCH, STOP	
S5019	4822 271 30731	SWITCH, EJECT	
S5020	4822 271 30731	SWITCH, POWER	
S5021	4822 271 30731	SWITCH, ALL CLEAR	
TA	4822 267 50752	SOCKET, 8 PIN	
TB	4822 267 50783	SOCKET, 10 PIN	

HEAD AMPLIFIER CIRCUIT

			
Q301	4822 130 60903	2SC2059K	
Q302	4822 130 61272	2SC2412K	
			
IC301	4822 209 63322	VHIXRA7252/-1	
			
L302	4822 157 62837	18μH	
L303	4822 157 10141	100μH	
L304	4822 157 10271	68μH	
L305	4822 157 53154	33μH	
L306	4822 157 10234	22μH	
L307	4822 157 10234	22μH	
L309	4822 157 10274	150μH	
MISCELLANEOUS			
TP301	4822 265 30331	PLUG, 2 PIN	
TP302	4822 265 30331	PLUG, 2 PIN	
ZA	4822 267 40804	SOCKET, 5 PIN	
XA	4822 267 50781	SOCKET, 7 PIN	
FB301	4822 157 53472	FERRITE BEAD	
FB302	4822 157 53472	FERRITE BEAD	

POWER CIRCUIT

		
Q901	4822 130 61259	2SD1565
Q902	4822 130 60767	2SA1013
		
IC901	4822 209 72481	95KUCB0029AZ
		
D901	4822 130 80205	11E1-TA2
D902	4822 130 80205	11E1-TA2
D903	4822 130 80205	11E1-TA2
D904	4822 130 80205	11E1-TA2
D905	4822 130 80205	11E1-TA2
D906	4822 130 80205	11E1-TA2
D907	4822 130 80205	11E1-TA2
D908	4822 130 80205	11E1-TA2
D909	4822 130 81748	11ES2-TA2
D910	4822 130 82356	1SS53-T4
D911	4822 130 82196	RD6.8ESAB3
D912	4822 130 82196	RD6.8ESAB3
D913	4822 130 82357	RD33EAB2-T4
D914	4822 130 82358	RD7.5ESAB1-T4
		
C901	4822 121 51368	0.047μF 250V POLYP.
C902	4822 124 23108	2200μF 35V ELECTR.
C903	4822 124 23108	2200μF 35V ELECTR.
		
R901	4822 116 82747	6.8MΩ 1/2W SOLID
R902	4822 116 82747	6.8MΩ 1/2W SOLID
R903	4822 116 82746	0.27Ω FUSE RESISTOR
R908	4822 111 30941	18kΩ 1/4W CARBON
R910	4822 111 30942	2.2kΩ 1/4W CARBON
PR901	4822 111 91976	6.8Ω THERMISTOR
		
L901	4822 121 20241	LINE FILTER (F0071GE)
T901	4822 146 21583	TRANSFORMER (PT2680)
MISCELLANEOUS		
F901	4822 321 10525	AC CORD AC 220V
F902	4822 253 30245	FUSE, T1A/250V
F902	4822 253 30353	FUSE, T2.5A/250V
OA	4822 265 30516	PLUG 3 PIN
PA	4822 265 41093	PLUG 10 PIN
PB	4822 265 30867	PLUG 3 PIN

L.C.D.- I.R.- REMOTE CONTROL TRANSMITTER

		
Q1	4822 130 61074	2SA812
Q2	4822 130 42672	2SD602S
		
IC1	4822 209 63426	MN1584532SCF
		
D1	4822 130 80421	SLR-938C
		
X1	4822 242 73881	DT-38
FILTER		
CF1	4822 242 73882	EFO-432
MISCELLANEOUS		
LCD	4822 130 90939	LF5337G
CABINET PARTS		
	4822 432 30384	CASE-A
	4822 432 30387	CASE-B
	4822 432 30388	CASE-C
	4822 276 80405	RUBBER KEY
	4822 454 21014	INDICATION PLATE
	4822 265 30871	CONNECTOR
	4822 290 81424	BATTERY TERMINAL (A)
	4822 290 81425	BATTERY TERMINAL (B)
	4822 290 81426	BATTERY TERMINAL (C)
	4822 502 13708	SCREW (M2+6S)
	4822 502 12927	SCREW (M2+8S)

TAPE DECK PARTS

CHASSIS PARTS

1	4822 528 90691	RETAINING GUIDE	62	4822 522 32501	TAKE-UP LOADING GEAR
2	4822 492 70049	RETAINING GUIDE SPRING	63	4822 403 53829	TAKE-UP LOADING ARM ASS'Y
3	4822 403 53507	HALF-LOADING LEVER			
4	4822 492 70054	HALF-LOADING LEVER SPRING	64	4822 522 32499	SUPPLY LOADING GEAR
			65	4822 403 53828	SUPPLY LOADING ARM ASS'Y
5	4822 403 53512	HALF-LOAD DRIVE LEVER	66	4822 464 50819	MAIN CHASSIS ASS'Y
6	4822 492 70059	HALF-LOAD RECIPROCATING SPRING	67	4822 401 11196	TENSION BAND ASS'Y
			68	4822 403 53553	TENSION SPRING HOOK PLATE
7	4822 403 53511	HALF-LOAD RECIPROCATING LEVER	69	4822 492 70064	TENSION SPRING
8	4822 492 70052	AZIMUTH SPRING	70	4822 403 53534	TENSION ARM ASS'Y
9	4822 249 10371	AUDIO/CONTROL HEAD ASS'Y	72	4822 403 53832	TAKE-UP POLE BASE SLIDER
10	4822 462 71543	RETAINING GUIDE CAP	73	4822 403 53827	TAKE-UP POLE BASE ASS'Y
11	4822 466 10565	AUDIO/CONTROL HEAD PWB	74	4822 528 90693	GUIDE ROLLER ASS'Y
12	4822 464 50731	AUDIO/CONTROL HEAD ARM	75	4822 403 53831	SUPPLY POLE BASE SLIDER
13	4822 492 42284	AUDIO/CONTROL HEAD ARM SPRING	76	4822 403 53826	SUPPLY POLE BASE ASS'Y
			77	4822 462 30398	TAKE-UP LOADING RAIL
14	4822 464 50729	LOADING BLOCK HOLDER ASS'Y	78	4822 462 30399	SUPPLY LOADING RAIL
			79	4822 528 90694	SUPPLY IMPEDANCE ROLLER INNOR
15	4822 466 10596	LOADING BLOCK PWB			
16	4822 361 21158	LOADING MOTOR	80	4822 528 90695	SUPPLY IMPEDANCE ROLLER FLANGE
18	4822 276 12663	CAM SWITCH			
19	4822 522 10405	WORM WHEEL	81	4822 528 81427	SUPPLY IMPEDANCE ROLLER
20	4822 528 50297	LOADING MOTOR PULLEY	82	4822 249 40246	FULL ERASE HEAD ASS'Y
21	4822 358 30876	LOADING BELT	83	4822 466 10597	FULL ERASE HEAD PWB
22	4822 522 10404	WORM ASS'Y	84	4822 462 71609	SUPPLY REEL RETAINER ASS'Y
23	4822 535 92515	WORM SHAFT			
24	4822 522 32799	MASTER CAM	85	4822 358 30877	REEL BELT
25	4822 403 53509	PINCH ROLLER LEVER ASS'Y	86	4822 403 53548	AUX. FAST FORWARD BRAKE LEVER
26	4822 403 53513	RELAY SHIFTER LEVER			
27	4822 403 53508	REVERSE GUIDE	87	4822 492 70069	AUX. FAST FORWARD BRAKE SPRING
28	4822 492 42283	REVERSE GUIDE SPRING			
29	4822 361 60488	CAPSTAN D.D. MOTOR	89	4822 691 20353	UPPER DRUM ASS'Y
30	4822 403 53516	SLOW BRAKE LEVER	90	4822 464 50739	DRUM BASE
31	4822 492 70056	SLOW BRAKE SPRING	91	4822 691 20478	LOWER DRUM ASS'Y
32	4822 492 70053	REVERSE GUIDE SPRING	92	4822 290 80818	EARTH BRUSH ASS'Y
33	4822 403 53533	RELAY GEAR DRIVE LEVER	93	4822 361 60496	DRUM D.D. MOTOR ASS'Y
34	4822 403 53517	BRAKE SHIFTER	94	4822 403 53302	HEATER ANGLE
35	4822 535 92514	BRAKE LOCK SHAFT	95	4822 209 72578	TRANSISTOR HEATER
36	4822 492 70051	ABSORBER PLATE SPRING	96	4822 321 60968	FULL FLAT CABLE
37	4822 492 70055	VIDEO SEARCH SPRING	97	4822 321 60969	FULL FLAT CABLE
38	4822 403 53514	VIDEO SEARCH BRAKE LEVER	99	4822 403 52542	DEW SENSOR
39	4822 403 53515	VIDEO SEARCH RECIPROCATING LEVER	100	4822 267 40807	SOCKET, 5 PIN (MF)
			101	4822 116 90456	220Ω, 1/4W, 5%
40	4822 281 50125	BRAKE SOLENOID ASS'Y	102	4822 122 32397	0.001μF, 50V, 10%
41	4822 528 81242	TAKE-UP REEL DISK ASS'Y	103	4822 111 90699	47kΩ, 1/16W, 5%
42	4822 522 32777	IDLER GEAR ASS'Y	105	4822 403 53519	TAKE-UP REEL DISK CATCH HOLDER
43	4822 522 32498	REEL PULLEY			
44	4822 492 42282	SHIFTER SPRING	106	4822 532 81093	SUPPLY IMPEDANCE ROLLER FLANGE
45	4822 403 53518	SHIFTER SPRING COVER			
46	4822 255 30209	CASSETTE LED HOLDER	110	4822 462 71611	SLOW BRAKE SHAFT CAP
47	4822 130 80994	CASSETTE LED	111	4822 403 53825	RELEASE PIN ANGLE ASS'Y
48	4822 214 32319	REEL SENSOR PWB	120	4822 691 20543	REEL UNIT ASS'Y
49	4822 130 82388	REEL SENSOR	121	4822 124 23501	22μF, 16V, 20%
50	4822 464 50728	REEL BLOCK CHASSIS	122	4822 265 30422	PLUG, 3 PIN
51	4822 403 53539	TENSION ADJUSTING LEVER	123	4822 267 51059	SOCKET, 8 PIN
52	4822 403 70193	TENSION RELEASE LEVER	124	4822 265 30419	PLUG, 2 PIN
53	4822 403 53537	BACK TENSION LEVER	131	4822 466 60979	SHIELD CUP
54	4822 492 70063	SPRING, FAST FORWARD	132	4822 321 61015	CONNECTING CORD
55	4822 528 81243	SUPPLY REEL DISK ASS'Y	180	4822 121 41271	0.01μF, 50V, +80% -20%
56	4822 492 70062	MAIN BRAKE SPRING			
57	4822 403 53541	INTERMEDIATE LEVER			
58	4822 403 53536	MAIN TAKE-UP BRAKE LEVER			
59	4822 403 53535	MAIN SUPPLY BRAKE LEVER			
60	4822 522 32502	LOADING RELAY GEAR			
61	4822 492 70061	LOADING RECIPROCATING SPRING			

CASSETTE HOUSING CONTROL PARTS

300	4822 464 50817	CASSETTE HOUSING CONTROL ASS'Y
301	4822 464 50741	DOWN GUIDE
302	4822 276 12483	CASSETTE ERASE PROTECTION SWITCH
303	4822 464 50776	CASSETTE HOUSING FRAME (RIGHT)
304	4822 403 53859	CASSETTE COVER ARM A
305	4822 403 53861	CASSETTE COVER ARM B
306	4822 522 32506	PHASE GEAR
307	4822 492 70374	CASSETTE COVER ARM RECIPR. SPRING
308	4822 492 42286	DRIVE GEAR SRING (RIGHT)
309	4822 522 32504	DRIVE GEAR (RIGHT)
310	4822 492 70065	RECIPROCATING SPRING
311	4822 522 32503	WORM WHEEL GEAR
312	4822 403 53522	WORM BRACKET
313	4822 520 10666	BEARING
314	4822 403 53547	OPEN LEVER
315	4822 492 42289	OPEN LEVER SPRING
316	4822 403 53546	SWITCHING LEVER
317	4822 492 70067	SWITCHING LEVER SPRING
318	4822 535 80789	WORM SHAFT ASS'Y
318-1	4822 522 32507	WORM
318-2	4822 535 80789	WORM SHAFT
318-3	4822 528 20623	CLUTCH
318-4	4822 528 20624	COUPLING
319	4822 403 53545	CLUTCH LOCK LEVER
320	4822 492 70066	CLUTCH LOCK LEVER SPRING
321	4822 403 53544	CLUTCH RELEASE LEVER
322	4822 492 70058	CLUTCH RELEASE LEVER SPRING
323	4822 403 53543	CLUTCH LEVER
324	4822 528 50298	PULLEY
325	4822 358 30878	CASSETTE LOADING BELT
326	4822 403 70188	UPPER PLATE
327	4822 464 50737	SLIDER HOLDER (LEFT)
328	4822 492 41391	CASSETTE SPRING
329	4822 403 53524	SLIDER LOCK (LEFT)
330	4822 492 70068	SLIDER LOCK SPRING
331	4822 464 50738	SLIDER
332	4822 403 53542	LOCK RELEASE LEVER
333	4822 492 42291	LOCK RELEASE LEVER SPRING
334	4822 462 71546	SLIDER LOCK COVER
335	4822 403 53523	SLIDER LOCK (RIGHT)
336	4822 464 50736	SLIDER HOLDER (RIGHT)
337	4822 522 32505	DRIVE GEAR (LEFT)
338	4822 492 42287	DRIVE GEAR SPRING (LEFT)
339	4822 464 50777	CASSETTE HOUSING FRAME (LEFT)
340	4822 535 92516	MAIN SHAFT
341	4822 214 32327	END SENSOR PWB
342	4822 130 32491	PHOTO-TRANSISTOR
343	4822 214 32683	START SENSOR PWB
344	4822 214 32583	CASSETTE SWITCH
347	4822 267 40879	SOCKET, 5 PIN
348	4822 209 82282	TRANSISTOR
349	4822 130 42277	TRANSISTOR
350	4822 116 52244	15 k Ω , 1/8W, 5%
351	4822 116 52257	22 k Ω , 1/8W, 5%
352	4822 116 52233	10 k Ω , 1/8W, 5%
353	4822 116 52283	4.7 k Ω , 1/8W, 5%
354	4822 116 52269	3.3 k Ω , 1/8W, 5%
355	4822 124 21916	0.047 μ F, 25V, 20%
356	4822 321 23633	CONNECTING CORD
357	4822 403 70187	MAIN PWB SUPPLY ANGLE
401	4822 502 12986	CUT WASHER (4.2W-6.0-0.5)
402	4822 502 13153	SCREW (B TIGHT BTN3P+6S)
403	4822 502 13695	SCREW 2.6P+4S

FIXING MATERIAL

201	4822 505 11001	ADJUSTING NUT
202	4822 532 52045	WASHER W2.6S-6-0.5
203	4822 532 11831	E-RING-2
204	4822 502 13165	AC HEAD SCREW
205	4822 502 13155	AZIMUTH ADJUSTING SCREW
206	4822 502 13148	TILT ADJUSTING SCREW
207	4822 505 10938	ADJUSTING NUT (A/C HEAD)
208	4822 532 11136	WASHER W3.1-5.4-0.5
209	4822 532 52038	WASHER W2.6-6-0.5 (LM)
210	4822 502 13158	SCREW C2.6P+6S
211	4822 532 11127	E RING-3
212	4822 532 52044	WASHER PSW4.6-6-0.25
213	4822 505 11079	ADJUSTING NUT (X-POSITION)
215	4822 532 52039	WASHER CW2.7-7-0.5
216	4822 530 70456	E RING-1.2
217	4822 502 13394	SCREW S2.6P+3S
218	4822 502 13393	SCREW 2P+3S(S TIGHT)
219	4822 532 11126	E RING-2.5
220	4822 532 52043	WASHER W2.6-5-0.5
221	4822 532 52041	WASHER W2.6-5-0.13
222	4822 532 52042	WASHER W2.6-5-0.25
223	4822 502 13151	SCREW W2.6P+6S
224	4822 502 13149	SCREW WSW2P+11S(W5)
225	4822 502 13154	SCREW M2X4
226	4822 502 13159	SCREW C2.6P+8S
227	4822 502 13364	B TIGHT SCREW C2.6P+8S
228	4822 502 11783	SCREW C3P+8S
229	4822 532 52037	WASHER CW2.5-6-0.5
230	4822 502 13161	B TIGHT SCREW 2P+6S
231	4822 502 11842	SCREW W3P+9S-NI
232	4822 502 13694	SCREW SW3P+10S-6W
233	4822 502 11761	SCREW SW3P+8S
234	4822 502 13156	SCREW SW2.6P+12S
235	4822 502 11755	SCREW SW3P+5S
236	4822 502 11757	SCREW SW3P+6S
237	4822 502 13365	SCREW S3P+6S
238	4822 530 70455	E RING-3 (CURL)
239	4822 532 52039	WASHER CW2.7-7-0.5
242	4822 532 52065	WASHER W2.6-5-0.4
244	4822 502 12488	SCREW C3P+4S
245	4822 503 11001	SCREW 3P+4S-N1

SERVICE TOOLS

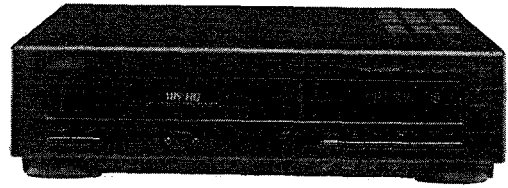
4822 395 80215	REEL DISC HEIGHT ADJUSTMENT
4822 395 80193	MASTER PLANE JIG
4822 395 80301	A/C HEAD TILT ADJUSTMENT
4822 395 80196	TORQUE GAUGE 90 G
4822 395 80197	TORQUE GAUGE 1.2 KG
4822 395 80198	GAUGE HEAD
4822 395 80217	CASSETTE TORQUE METER
4822 395 80194	TENSION GAUGE 300 G
4822 395 80216	TENSION GAUGE 2 KG
4822 395 80189	HEX WRENCH 0.9 MM
4822 395 80191	HEX WRENCH 1.2 MM
4822 395 80192	HEX WRENCH 1.5 MM
4822 397 30107	ALIGNMENT TAPE PAL
4822 395 80186	DRUM REPLACING JIG
4822 395 80213	TENSION GAUGE ADAPTER
4822 395 50189	SPECIAL SCREW DRIVER
4822 395 50191	TENSION BAND ADJUSTMENT
5322 395 54047	TORQUE SCREW DRIVER
4822 395 50192	BOX DRIVER
4822 395 50273	BOX DRIVER
4822 395 80302	RET. GUIDE HEIGHT ADJUSTMENT
4822 395 80303	REV. GUIDE HEIGHT ADJUSTMENT



V14623

Video cassette recorder VR3260/67/95

**Service
Service
Service**



45 481 A11

Service Manual



PAL/MESECAM

VR3260 is a video cassette recorder with a TV-reception part and electronic timer, suitable for recording and playing back TV-signals which meet the CCIR-PAL and MESECAM TV-standard. The signals are recorded on tape according to the VHS-standard.

CONTENTS	Page
Specifications	2
Disassembly and reassembly	3
Mechanical repairs and adjustments	6
Adjustment of electrical circuits	31
Trouble shooting guide	38
Schematic diagrams, printed wiring boards etc.	63
Exploded views	77
Parts list	79

I.R.-Remote Control VR3260/67 Servicecodenumber : 4822 218 30573

I.R.-Remote Control VR3260/95 Servicecodenumber : 4822 218 30574

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio

Subject to modification

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CS 31 684

SPECIFICATIONS

Format : VHS PAL standard
 Video recording system : Two rotary head helical scan system
 Video signal : PAL/SECAM colour and B/W signals, 625 lines
 Recording playing time : 4 hours max. with E-240 tape
 Tape width : 12.7 mm
 Tape speed : 23.39 mm/sec.
 Antenna : 75 ohm unbalanced
 Receiving channel /67 : VHF channel E2-E12
 UHF channel E21-E69
 /95 : VHF channel S1-S20 / E2-E12
 UHF channel E21-E69
 RF converter output signal /67 : VHF channel 3-4 (switchable)
 Preset to channel 3
 /95 : UHF channel E30-E39 (adjustable)
 Preset to channel E36
 Power requirement /67 : AC 220V 50/60Hz
 /95 : AC 220V 50Hz
 Power consumption : Approx. 26W
 Operating temperature : 5°C to 40°C
 Storage temperature : -20°C to 55°C
 Weight : 5.7 kg
 Dimensions : 360 mm (W) x 300 mm (D) x 99mm (H)

VIDEO

Input : 1.0 Vp-p, 75 ohm
 Output : 1.0 Vp-p, 75 ohm

AUDIO 0dB = 0.775 Vrms

Input : Line : -8dBs, more than 47k ohm
 Output : Line : -8dBs, less than 1k ohm

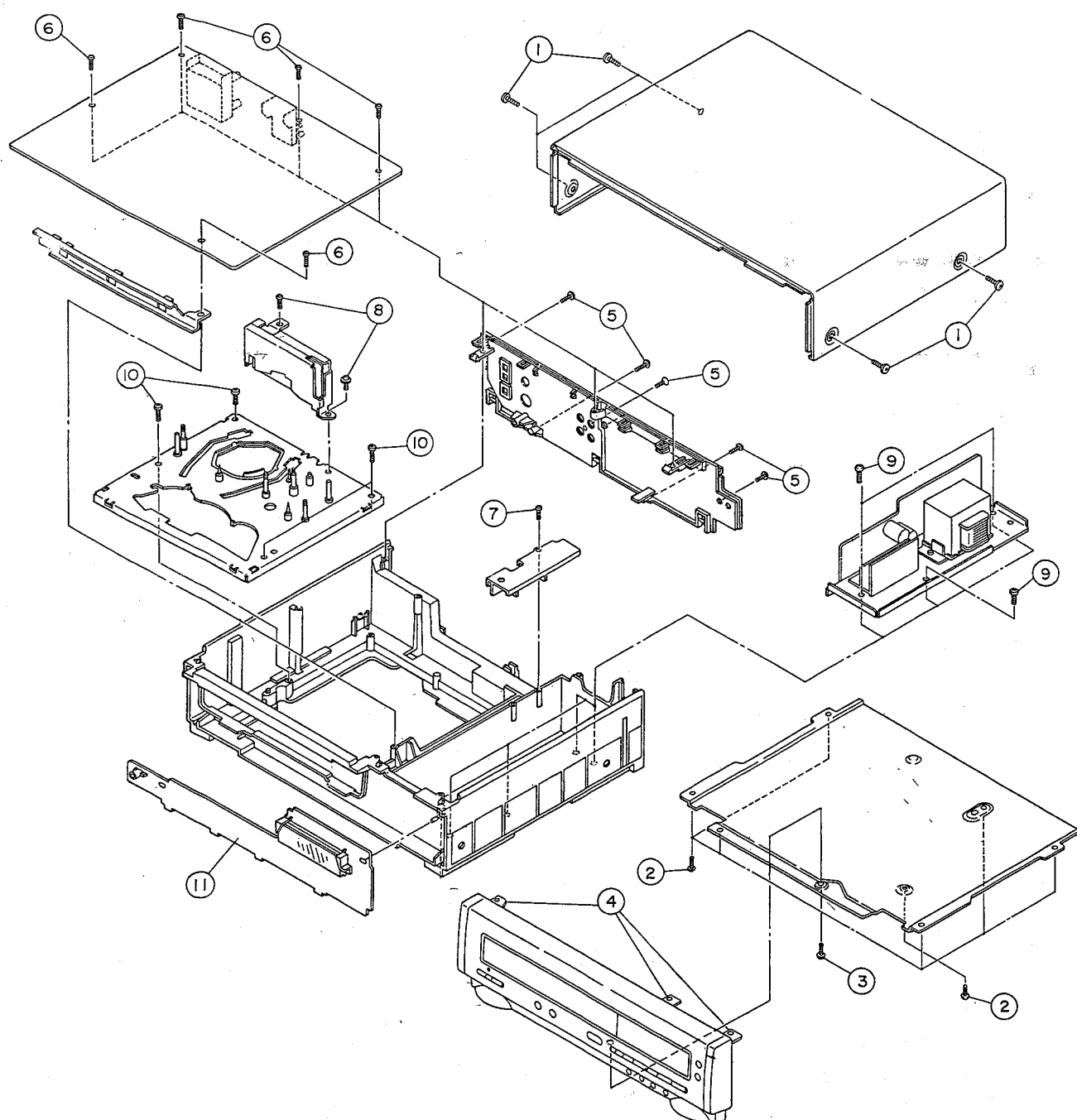
Accessories included : Antenna 75 ohm coaxial connector cable (plug provided)
 Operation Manual
 Infrared remote control
 Battery

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

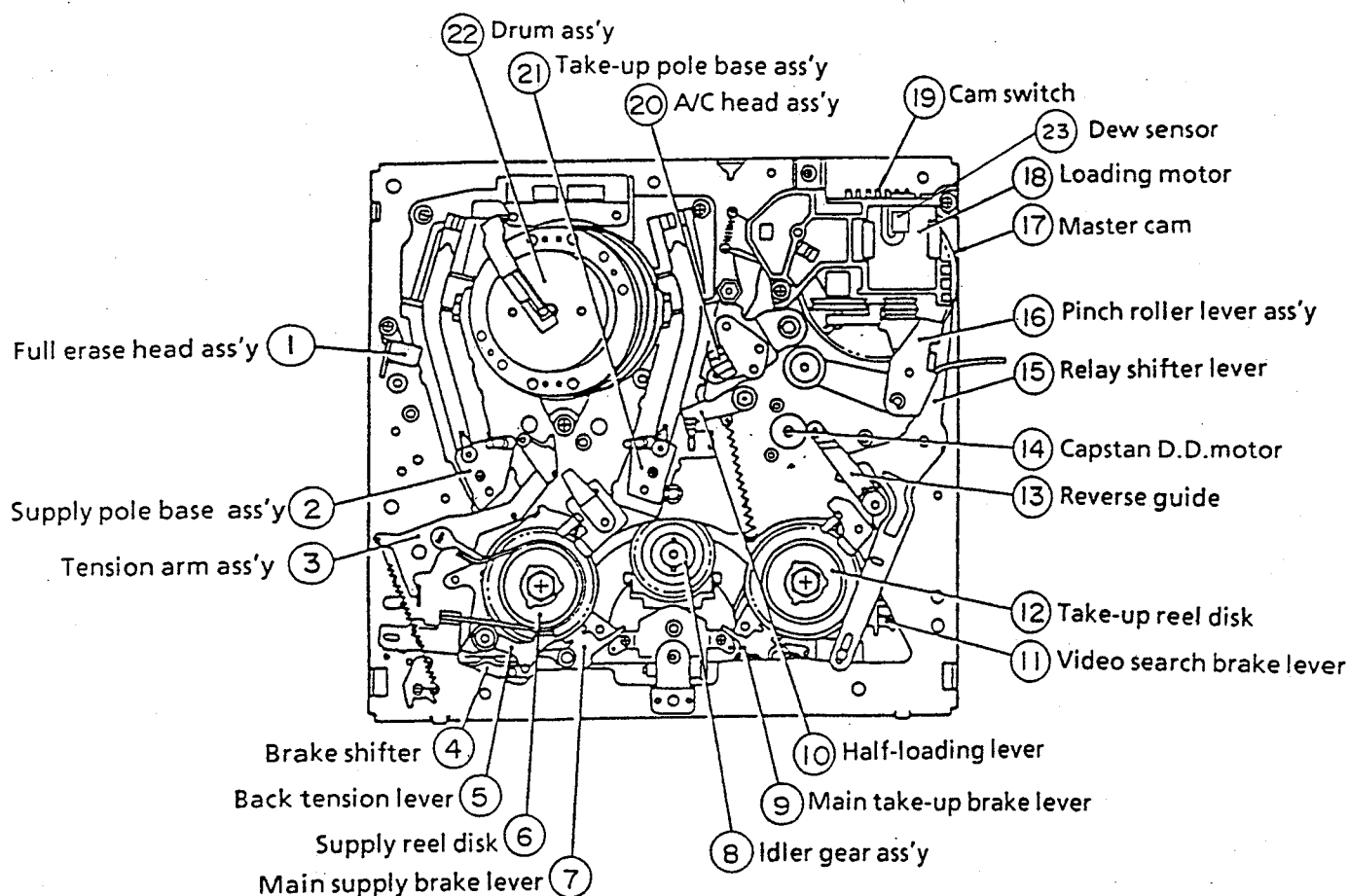
Note : The antenna must correspond to the new standard DIN 45325
 (IEC 169-2) for combined UHF/VHF antenna with 75 ohm connector.

DISASSEMBLY AND REASSEMBLY

1. Remove the four upper cabinet fastening screws ①.
2. Remove the seven bottom panel fastening screws ②.
3. Remove the one front panel fastening screw ③.
4. Release the three clips ④ and remove the front panel.
5. Remove the six antenna terminal cover fastening screws ⑤.
6. Remove the five main PWB fastening screws ⑥ and remove the main PWB referring to "Removal of the main PWB" on page 97.
7. Remove the one holder fastening screw ⑦.
8. Remove the two head amp PWB fastening screws ⑧.
9. Remove the three power unit fastening screws ⑨.
10. Remove the four mechanism chassis fastening screws ⑩.
11. Release the operation/timer PWB ⑪ fastening clips.

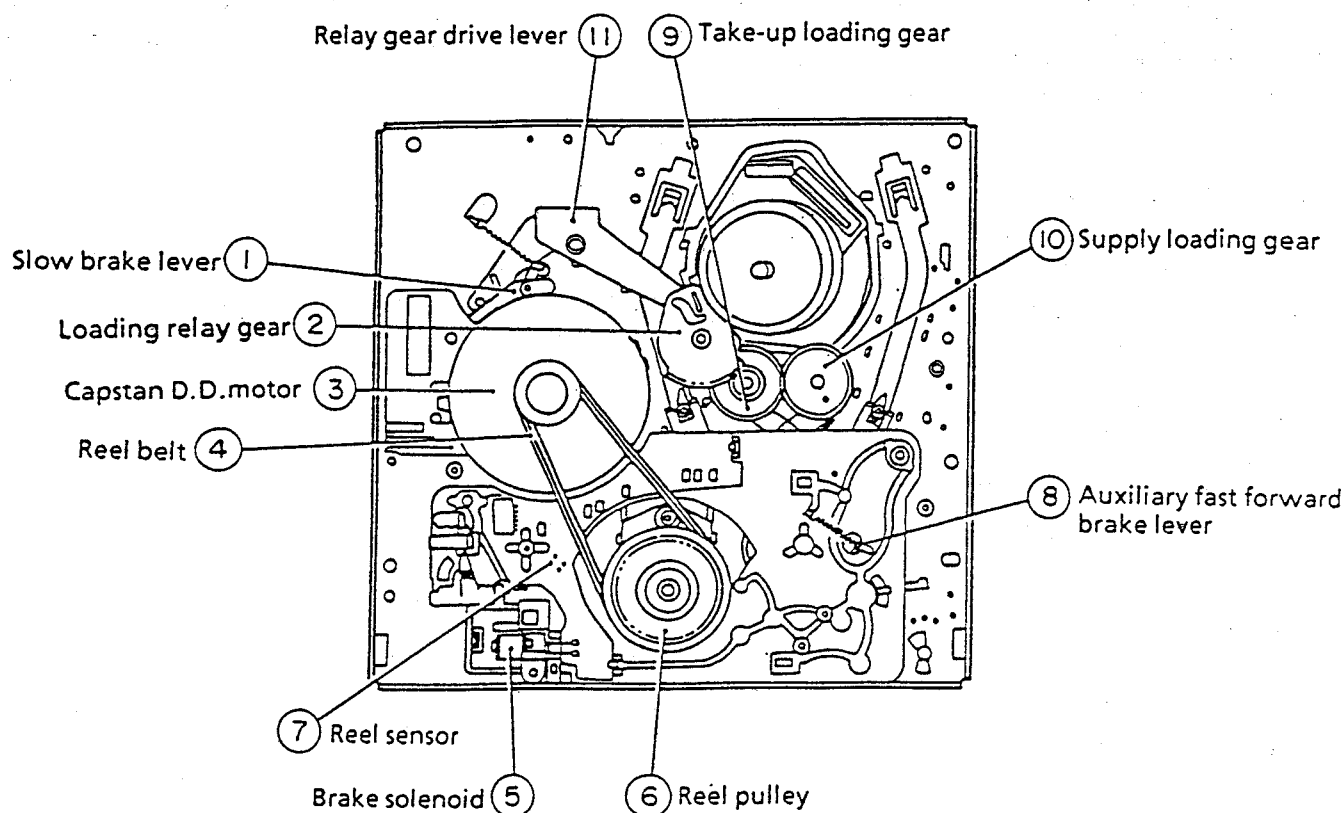


FUNCTION OF MAJOR MECHANICAL PARTS (TOP VIEW)



No.	Function	No.	Function
1.	Full erase head ass'y Erase the whole records on the tape in the recording mode.	13.	Reverse guide Pulls out the tape in the video search rewind mode, and controls the tape drive train height with the upper and lower guides.
3.	Tension arm ass'y Detects the tension of tape while running, and brakes the supply reel disk via the tension band.	15.	Relay shifter lever Transmits the operation of the master cam to the brake shifter, and operates the reverse guide.
4.	Brake shifter Set the position of brake or the like in accordance with the modes such as stop and playback. Back tension lever	16.	Pinch roller lever ass'y Press-fits the tape to the capstan during tape running. The right protrusion switches the clutch of the cassette housing control assembly in "tape eject", and makes the mechanism eject the tape.
5.	Back tension lever Bakes the supply reel disk to a certain degree to prevent tape slackening during "loading" and "shifting from playback to video search rewind".	17.	Master cam Turns clockwise during loading, and counterclockwise during unloading, and moves the shifter or the like in accordance with each mode.
7.	Main supply brake Brakes the supply reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.	18.	Loading motor A motive power which drives the mechanism. It transmits the power to the master cam and cassette housing control assembly via the belt.
9.	Main take-up brake Brakes the take-up reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.	19.	Cam switch Rotates synchronously with the master cam, and detects the position of each mode by means of the internal switch
10.	Half-loading lever Bring the tape in contact with the A/C head, putting it in half-loading state in the fast forward or rewind mode.	23.	Dew sensor Detects the generation of dew in the set. It stops the mechanical action of the set when finding any dew in the set.
11.	Video search brake lever It is in contact with the take-up reel disk normally, and brakes it to a certain degree. It applies larger brake in the video search rewind mode.		

FUNCTIONS OF MAJOR MECHANICAL PARTS (BOTTOM VIEW)



No.	Function	No.	Function
1.	Slow brake lever Gets in contact with the capstan D.D. motor linking to the master cam in the slow still mode, and brakes it to a certain degree.	7.	Reel sensor An element which sheds the light onto the reflection plate affixed to the bottom side of the reel disk, and detects the rotation of the reel disk through receiving the reflected light.
3.	Capstan D.D. motor A motive power which runs the tape. It transmits the power via the reel belt.	8.	Auxiliary fast forward brake lever Brakes the supply reel disk to a certain degree in the fast forward and rewind modes.
4.	Reel belt Transmits the power to run the tape to the reel pulley.	9.	Take-up loading gear Shifts the take-up pole base and guide roller via the loading relay gear, and applies the tape around the drum assembly, as well as transmits the power to the supply loading gear.
5.	Brake solenoid Adsorbs and holds the brake shifter in the fast forward and rewind modes, and releases it in the stop mode.	10.	Supply loading gear Shifts the supply pole base and guide roller via the take-up loading gear, and applies the tape around the drum assembly.
6.	Reel pulley Transmits the power of the capstan D.D. motor to the reel disk via the reel idler.	11.	Relay gear drive lever Transmits the movement of the master cam to the take-up loading gear via the loading relay gear.

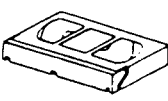
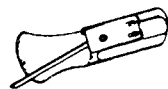
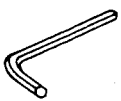
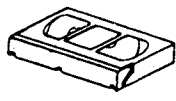
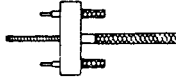
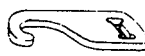
ADJUSTMENT, REPLACEMENT, ASSEMBLY AND CLEANING OF MECHANICAL UNITS

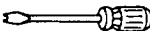
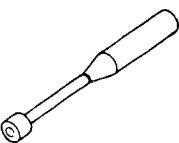
Here we will describe a relatively simple service work in the field, not referring to the more complicated repairs which would require the use of special equipment and tools (drum assembly or replacement, for example).

We are sure that the easy-to-handle tools listed below would be more than handy for periodical maintenance to keep the machine in its original efficient condition.

TOOLS NECESSARY FOR ADJUSTING THE MECHANICAL UNITS

The following tools are required for proper service and satisfactory repair.

No.	Jig Item	Part No.	Code	Configuration	Remarks
1	Reel Disk Height Adjusting Jig	JiGRH0002	BR		These Jigs are used for checking and adjusting the reel disk height.
2	Master Plane Jig	JiGMP0001	BY		
3	A/C Head Tilt Adjusting Jig	JiGACH-F18	BU		This Jig is used for setting the A/C head tilt.
4	Torque Gauge (90g)	JiGTG0090	CM		These Jigs are used for checking and adjusting the torque of take-up and supply reel disks.
	Torque Gauge (1.2 kg)	JiGTG1200	CN		
5	Gauge Head	JiGTH0006	AW		
6	Cassette Torque Meter	JiGVHT-063	CZ		This cassette torque meter is used for checking and adjusting the torque of take-up and supply reel and for measuring tape back tension.
7	Tension Gauge (300g)	JiGSG0300	BF		There are two Gauges used for the tension measurements, 300 g and 2.0 kg.
	Tension Gauge (2.0 kg)	JiGSG2000	BS		
8	Hex Wrench (0.9 mm)	JiGHW0009	AE		These Jigs are used for loosening or tightening special Hexagon type screws.
	Hex Wrench (1.2 mm)	JiGHW0012	AE		
	Hex Wrench (1.5 mm)	JiGHW0015	AE		
9	Alignment Tape (PAL)	VROCPSV	CK		This tape is especially used for electrical fine adjustment.
10	Drum Replacing Jig	JiGDT-0001	BG		This is used for replacement of the VCR's upper drum.
11	Tension Gauge Adapter	JiGADP003	BK		This Jig is used for the tension gauge. Rotary Transformer Clearance Adjusting Jig.

No.	Jig Item	Part No.	Code	Configuration	Remarks
12	Special Bladed Screwdriver	JiGDRIVERH-4	AP		This Screwdriver is used for adjusting the guide roller height and X-position.
13	Tension Band and Plate Adjusting Jig	JiGDRIVER-6	BM		This Jig is used for adjusting the tension band and tension plate.
14	Torque Driver	JiGTD1200	CB		This is used to screw down resin-made parts: the specified torque is 5 kg.
15	Box Driver	JiGDRIVER110-7	AS		This Jig is used for height adjustment of the A/C head.
		JiGDRIVER110-4	AV		This Jig is used for height adjustment of the retaining guide.
16	Retaining Guide Height Adjusting Jig	JiGGH-F18	BU		This Jig is used for height adjustment of the retaining guide.
17	Reverse Guide Height Adjusting Jig	JiGRVGH-F18	BU		This Jig is used for height adjustment of the reverse guide.

NOTE:

Current JiGMA0001 contains Master Plane (JiGMP0001) and Disk Height Adjusting Jig (JiGRH0001). Even though new Disk Height Adjusting Jig (JiGRH0002) covers greater height, this new Jig (JiGRH0002) can be used for current JiGRH0001, but current Jig (JiGRH0001) cannot be used as JiGRH0002. Master Plane (JiGMP0001) can be used with JiGRH0001 and JiGRH0002 as well.

SERVICE TOOLS

JiGRH0002	4822 395 80215	Reel disc height adjustment
JiGMP0001	4822 395 80193	Master plane jig
JiGACH-F18	4822 395 80301	A/C head tilt adjustment
JiGTG0090	4822 395 80196	Torque gauge 909
JiGTG1200	4822 395 80197	Torque gauge 1,2 kg.
JiGTH0006	4822 395 80198	Gauge head
JiGVHT-063	4822 395 80217	Cass. torque meter
JiGSG0300	4822 395 80194	Tension gauge 300 gr.
JiGSG2000	4822 395 80216	Tension gauge 2 kgr.
JiGHW0009	4822 395 80189	Hex wrench 0.9 mm
JiGHW0012	4822 395 80191	Hex wrench 1.2 mm
JiGHW0015	4822 395 80192	Hex wrench 1.5 mm
VROCPSV	4822 397 30107	Align tape PAL
JiGDT-0001	4822 395 80186	Drum replacing jig
JiGADP003	4822 395 80213	Tension gauge adapter
JiGDRIVERH-4	4822 395 50189	Special screw driver
JiGDRIVER-6	4822 395 50191	Tension band adjustment
JiGTD1200	4822 395 54047	Torque screw driver
JiGDRIVER110-7	4822 395 50192	Box driver
JiGDRIVER110-4	4822 395 50273	Box driver
JiGGH-F18	4822 395 80302	Ret guide height adjustment
JiGRVGH-F18	4822 395 80303	Rev guide height adjustment

MECHANICAL PARTS REQUIRING PERIODICAL INSPECTION

Use the following table as a guide to maintain the mechanical parts in good operating condition.

Parts Maintained	500 hrs.	1000 hrs.	1500 hrs.	2000 hrs.	3000 hrs.	Possible symptom encountered	Remarks
Guide roller ass'y	☐	☐	☐	☐	☐	Lateral noises Head occasionally blocked	Abnormal rotation or significant vibration requires replacement.
Supply impedance roller	☐	☐	☐	☐	☐		Clean with pure high quality isopropyl alcohol.
Supply impedance roller (inner hole and shaft)		☐		☐	☐		Clean tape contact part with the specified cleaning liquid.
Supply impedance roller flange B	☐	☐	☐	☐	☐		
Retaining guide	☐	☐	☐	☐	☐		
Slant pole	☐	☐	☐	☐	☐		
Video head	☐	☐	☐	☐	☐	Poor S/N ratio, no colour	Clean tape contact area with the specified cleaning liquid.
Full-erase head	☐	☐	☐	☐	☐	Poor colour, beating	
A/C head	☐	☐	☐	☐	☐	Sound too small or distorted	
Capstan D.D. Motor	☐	☐	☐	☐	☐	No tape running, uneven colour	
Pinch roller	☐	☐	☐	☐	☐	No tape running, tape slack	Clean rubber and rubber contact area with the specified cleaning liquid.
Reel belt		☐		☐	☐	No tape running, tape slack, no fast forward/rewind motion	
Loading belt		☐		☐	☐	Cassette not loaded or unloaded	
Cassette loading belt		☐		☐	☐		
Tension band ass'y					☐	Lateral image swing	
Loading Motor					☐	Cassette not loaded or unloaded	
Reel block*						See the chart below.	
•See the table below for servicing the reel block parts.							
Supply/take-up reel disks		☐	☐	☐	☐	No tape running, tape slack	Clean with pure high quality isopropyl alcohol.
Video search brake lever				☐			
Idler gear ass'y				☐		No tape running	
Reel Pulley		☐	☐	☐	☐		
Main supply/take-up brake levers				☐		Tape slack	

NOTE: ○: Part replacement.
☐: Cleaning (For cleaning, use a lint-free cloth dampened with pure isopropyl alcohol).
△: Oil refilling (The indicated point should be lubricated with high quality spindle oil every 1000 hrs).

If the reading is out of the specified value, clean or replace the part.

REMOVAL AND REASSEMBLY OF CASSETTE HOUSING CONTROL ASSEMBLY

● Removal

1. Set the cassette ejected condition in the cassette eject mode.
2. Unplug the recorder from the main source.
3. Follow the procedures below in the specified order.
 - a) Remove the cassette loading belt ①.
 - b) Disconnect the FFC (full Flat Cable) ②.
 - c) Remove the cassette housing installation screws ③.
 - d) Slide and pull out the cassette housing control assembly upward ④.

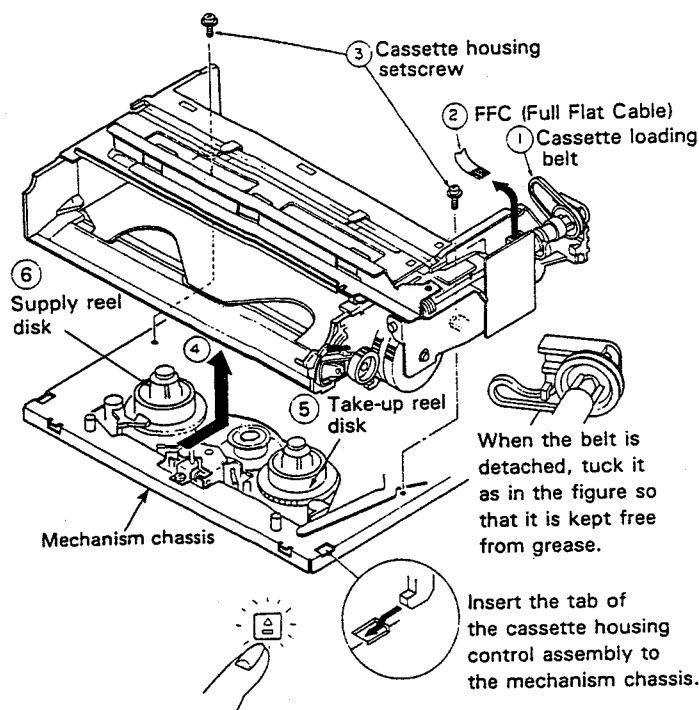


Figure 1-1.

● Reassembly

1. Before installation of the cassette housing control assembly, place the unit in the stop mode with the power on, then unplug the power cord. (The main body is placed in the eject mode.)
2. Follow the procedures for removal in the reverse order.

Notes:

1. Be sure to unplug the power cord in removal and reassembly.
2. Keep the cassette loading belt free from grease. In case of its adhesion, clean the belt.
3. In using a magnet screw driver, be sure to keep it away from the A/C head, FE (Full Erase) head, or the drum.
4. In removal and reassembly, take care not to hit the cassette housing control assembly or tools against the guide pin, drum, or the like thereabout.

5. Place the unit in the eject mode in removal or reassembly of the cassette housing control assembly.
6. Load the cassette once onto the cassette housing control assembly after reassembly. (If the cassette housing control assembly normally operates after this, the phases of mechanism and the cassette controller are accurately adjusted after ejection.)

MECHANICAL OPERATION CHECK WITHOUT CASSETTE

When power is on, the general operations of the mechanism can be checked without a cassette. Note the following points.

1. Check video search rewind and rewind, rotating the take-up reel disk ⑤ by hand (in either normal or reverse direction). If it is not rotated, the reel sensor works to shift the mechanism to the eject mode.
2. When the stop button is pressed, the mechanism does not stop at a normal stop position. It shifts to the eject mode and stops.
3. When the stop button is pressed in the playback, video search rewind, and video search forward modes, the supply reel disk ⑥ keeps on rotating for several seconds for elimination of tape slack in the course of shifting to the eject mode. In such a case, rotate the take-up reel disk ⑤ somewhat by hand, and the supply reel disk ⑥ stops, which can reduce the working time.

REPLACEMENT OF WORM WHEEL ASSEMBLY

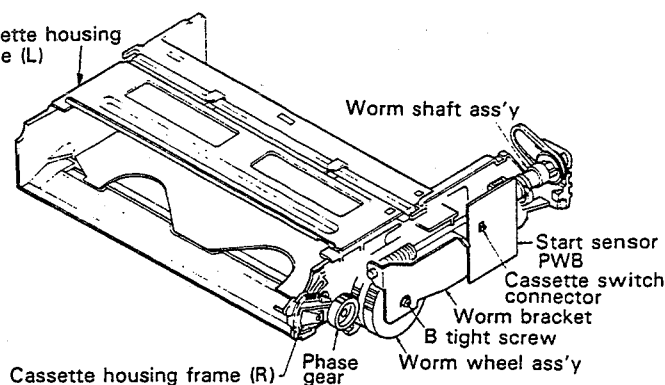


Figure 1-2.

● Removal

1. Unsolder the cassette switch connectors (No. 16, 17) from the start sensor PWB.

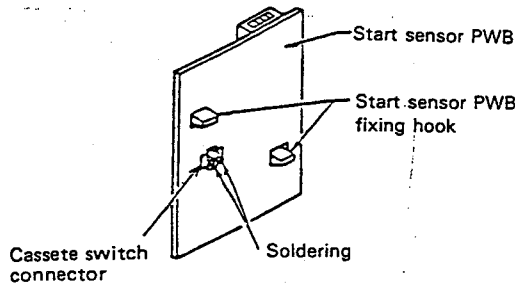


Figure 1-3.

2. Lift the start sensor PWB pressing the two start sensor PWB fixing hooks inward.

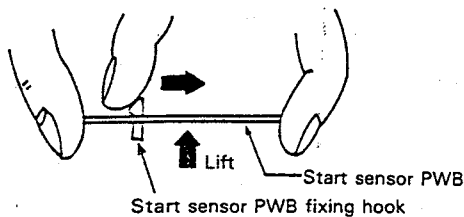


Figure 1-4.

3. Unscrew one B tight screw to detach the worm bracket.

Note: The worm shaft bearing can easily come out of position. So be careful not to lose it.

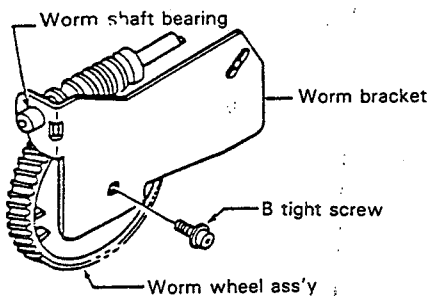


Figure 1-5.

4. Remove the worm shaft assembly, pulley, and cassette loading belt all from the cassette housing frame (R).

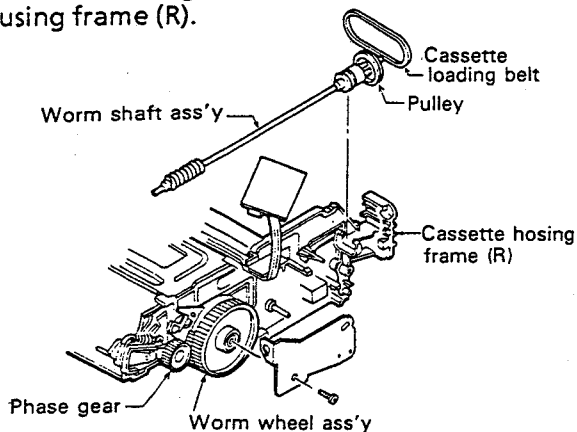


Figure 1-6.

5. Place the slider pin just above the worm wheel (Figure 1-7). (The retainer of the slider is locked at two positions when. So unlock it as in the Figure 1-8.)
6. Pull out the worm wheel assembly toward you pressing the switch lever upward. (Figure 1-7)

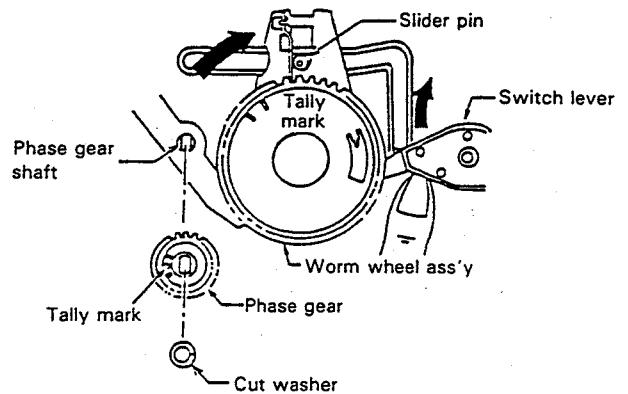


Figure 1-7.

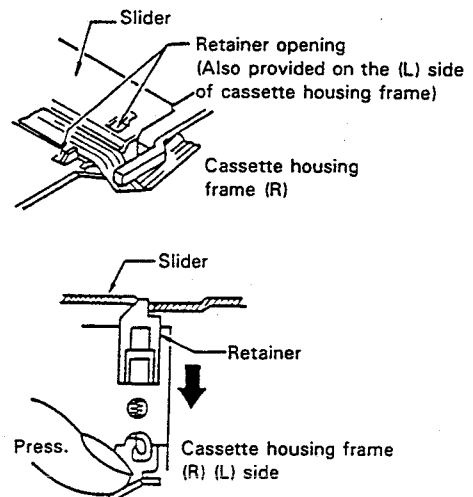


Figure 1-8.

● Reassembly

1. Turn the phase gear clockwise until the slider comes to a halt in the cassette insertion direction. (See the Figure 1-9.)
2. Insert the set up worm wheel gear assembly into the cassette housing frame (R), matching the mark on the phase gear with the mark on the worm wheel gear. Detach the cut washer on the phase gear assembly and the phase gear for easier installation of worm wheel assembly.

Note: Make sure that the slider pin is in the groove of the drive gear arm.

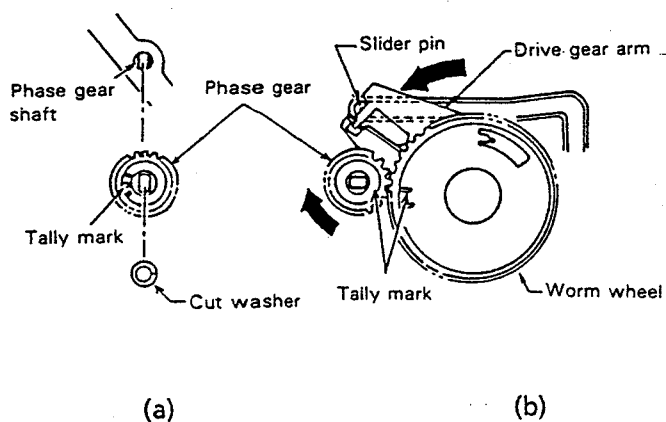


Figure 1-9.

3. Install the pulley and the cassette loading belt on the worm shaft assembly. Couple the clutch to the clutch lever. And mount them together in the cassette housing frame (R).

Note: Keep in mind that the clutch switching lever should be in the correct position. The mechanism might malfunction if the lever is slightly out of position. (See page 14.)

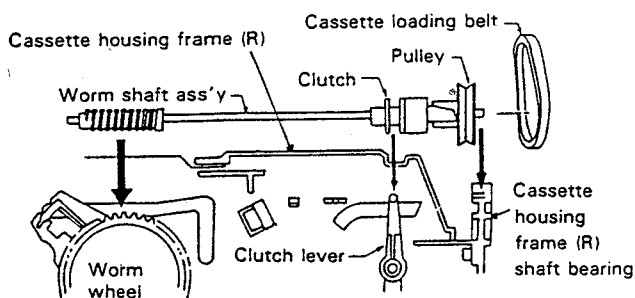


Figure 1-10.

4. Attach the worm bracket to the worm shaft assembly. Place them onto the boss on the cassette housing frame (R).

Note: Insert ① before screwing into ② and ③.

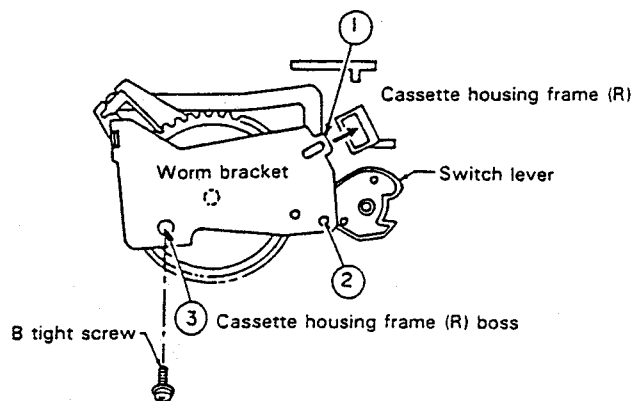


Figure 1-11.

5. Tighten one B tight screw.

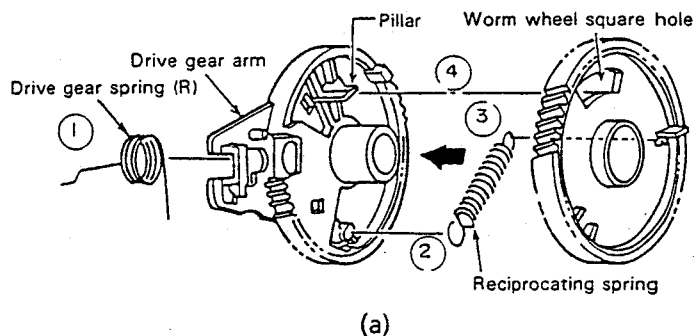
Note: Do not overtighten the B tight screw (no more than 5.0 ± 0.5 kg.cm), because the lower threads of the screw hole at the resin-mode boss can be broken.

6. Place the start sensor PWB on the cassette housing frame (R).

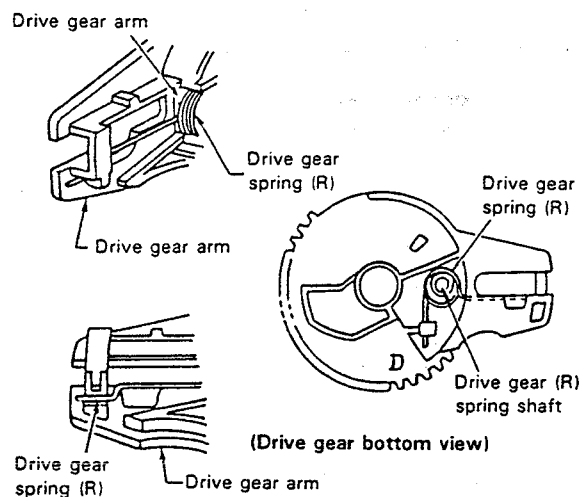
Note: Check that the switch connectors (No. 16, 17) are in the cassette switch mounting hole.

7. Finally resolder the cassette switch connector to the start sensor PWB.

REASSEMBLY OF DRIVE GEAR



(a)



(b)

Figure 1-12.

1. Pass the tip of the drive gear spring (R) ① through the square hole of the drive gear (R) to hook the spring in position.
2. Hook one end ② of the reciprocating spring to the catch of the drive gear (R).
3. Hook the other end ③ of the reciprocating spring to the catch of the worm wheel.
4. Insert the pillar ④ of the drive gear (R) into the square hole of the worm wheel. Turn the worm wheel somewhat counterclockwise for insertion of the worm wheel to the drive gear (R), because the reciprocating spring is at work.

REPLACEMENT OF CASSETTE LOADING BELT

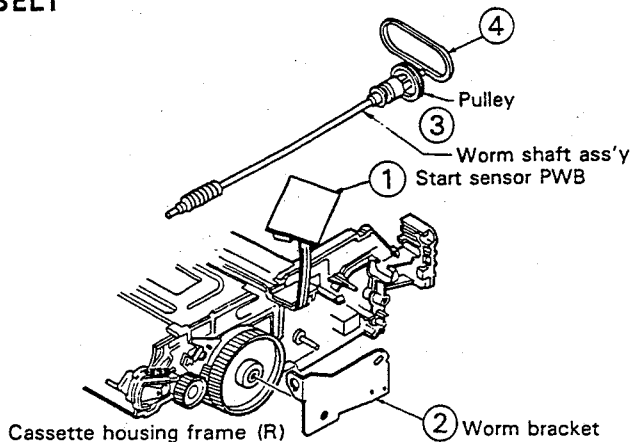


Figure 1-13.

1. Remove the start sensor PWB ① and worm bracket ② from the cassette housing frame (R).
2. Remove the worm shaft assembly ③.
3. Replace the cassette loading belt ④ with a new one.

Notes:

1. Do not overtighten the B tight screw which holds the worm bracket in position. The specified torque is 5.0 ± 0.5 kg.cm.
2. Make sure that the cassette loading belt is free from grease. If stained with grease, clean the belt with the cleaning liquid.
3. Perform checking of the clutch switch lever for proper action.

CHECKING THE CLUTCH SWITCH LEVER

• Checking

Place the mechanism in the cassette eject mode when removing and attaching the cassette housing from and to the mechanism chassis.

Make sure enough that each part in the cassette housing such as the clutch switch lever is in position. If not, it causes malfunction.

Note:

Figure 1-14 shows the position of each part in the cassette eject mode.

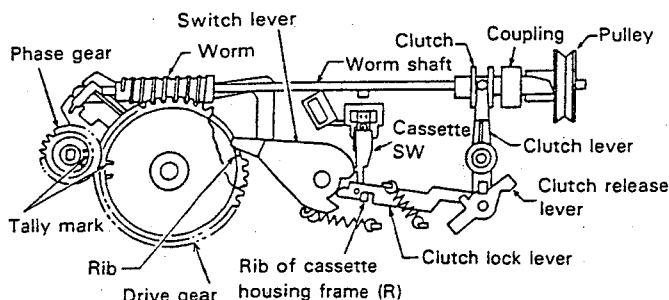
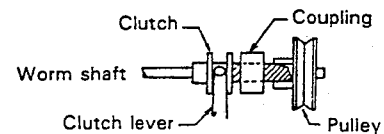


Figure 1-14.

1. First make sure that the tip of the switch lever is held at the rib of the drive gear (R).
2. Check that the rib of the cassette housing frame (R) and the concavity of the clutch lock lever are engaged.
3. Finally be sure that the relationship between the clutch lever and the clutch, as well as between the clutch and the pulley, are correct as in the Figure 1-15.



Check that the clutch is engaged with the pulley through the coupling.

Figure 1-15.

• Resetting

Take the following steps to reset the clutch if it is unlocked or if the switch lever and the clutch lock lever are unlocked.

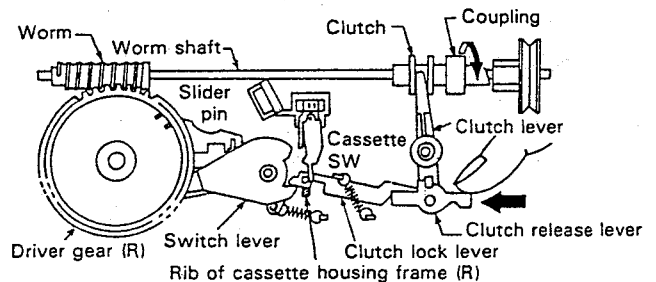


Figure 1-16.

1. Shift the slider by turning the coupling in the arrow direction (clockwise) until the slider pin is at the bottom of the slider groove as shown in the Figure 1-16. (The loading mode)

Note: Note that the slider is equipped with a lock mechanism. Unlock the locks on cassette housing frame (L) and (R) side before shifting the slider.

2. When the position is set as shown in the Figure 1-16, push the clutch release lever in the direction of the arrow by hand until the clutch lock lever becomes tightly locked by the rib of the cassette housing frame (R).
3. Then turn the coupling counterclockwise until the slider reaches the cassette insertion opening and the reciprocating spring is activated.

Note: There is no need to unlock the slider when shifting the slider to the cassette insertion opening. Just keep shifting the slider.

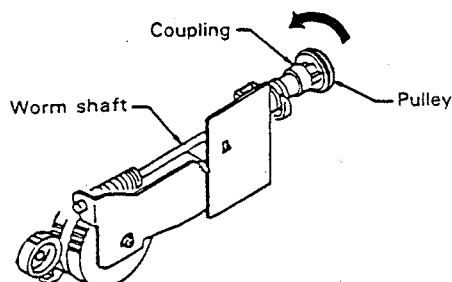
REPLACEMENT OF LOCK RELEASE LEVER

• Removal

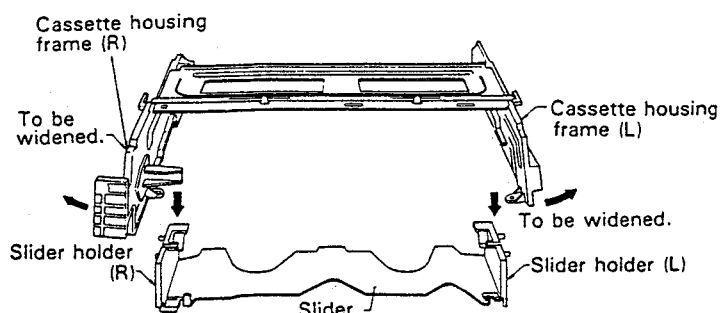
1. Place the slider in the cassette down position. (Turn the coupling on the worm shaft clockwise until the slider is in the cassette down position.)

Note: Before shifting, unlock the slider.

2. Slightly widen the cassette housing frames (R) and (L) to unhook the slider holders (R) and (L) of the slider assembly off the grooves of the cassette housing frames.



(a)



(b)

Figure 1-17.

3. Lift the slider holder (R) upward about 2mm off the slider by pressing two catches with a thin tip screw driver. Take care not to damage the catches.

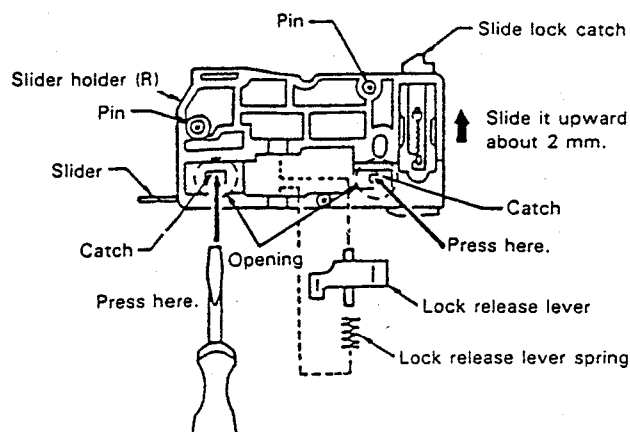


Figure 1-18.

4. Remove the lock release lever from the slider holder (R).

• Reassembly

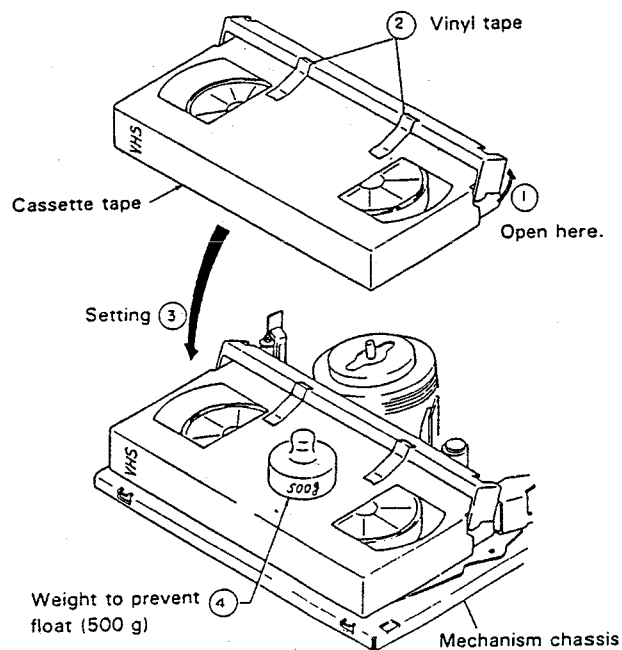
1. Follow the steps for removal in the reverse order. (See Figures 1-17 and 1-18.)
2. Attach the lock release lever to the slider holder (R).
3. Slide the slider holder (R) downward so that the two catches of the slider holder (R) fit the opening of the slider.
4. Slightly widen the cassette housing frames, and set the pins of slider holders (R) and (L) into the grooves of the cassette housing frames.

Note: Check if the pins of the slider holders (R) and (L) fit the grooves of the cassette housing frames, and if the drive gear arm is sufficiently engaged with the slider holders.

5. Turn the coupling counterclockwise until the slider is at the cassette insertion opening.

TO RUN A TAPE WITHOUT THE CASSETTE HOUSING CONTROL ASSEMBLY

1. Plug in the power cord.
2. Turn on the power switch.
3. Open the lid ① of a cassette tape by hand.
4. Hold the lid with a piece of vinyl tape ②.
5. Set the cassette tape in the mechanism chassis.
6. Weight the cassette tape with a weight ④ to prevent float.
7. Perform running test.



Note: The weight should not be more than 500 g.

Figure 1-19.

REPLACEMENT AND HEIGHT CHECKING AND ADJUSTMENT OF REEL DISKS

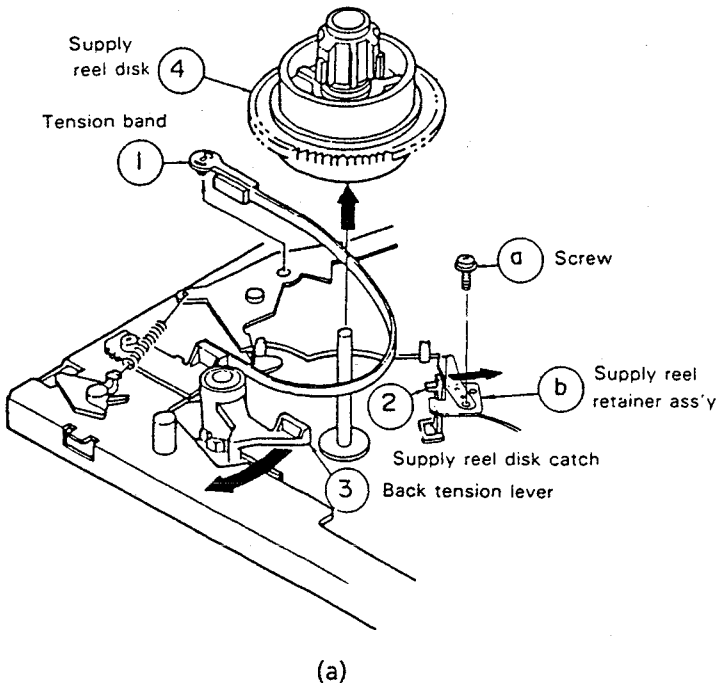
1. Remove the cassette housing control assembly.
2. Set the mechanism in the playback mode with no cassette tape in place. Unplug the power cord.
3. Set the idler gear in the center (neutral).

● Removal (Supply reel disk)

1. Remove the tension band ①. (Take care not to deform it.)
2. Unscrew the screw ② and remove the supply reel retainer assembly ③.
3. Release the supply reel disk catch and back tension lever ④.
4. Pull the supply reel disk upward.

Notes :

1. Take care not to deform the tension band.
2. Check and adjust the tension pole position. (See page 19.)
3. Be careful not to damage the gear and the idler gear on the supply reel disk.
4. Press the tension band in the direction of the arrow for removal (see Figure 1-20(b)).



Note: When the tension band is pressed in the direction of the arrow for removal, the catch is hard to be deformed.



(b)
Figure 1-20.

● Removal (Take-up reel disk)

1. Unscrew the screw ① and remove the take-up reel retainer.
2. Release the take-up reel disk catch ②.
3. Pull the take-up reel disk ③ upward.

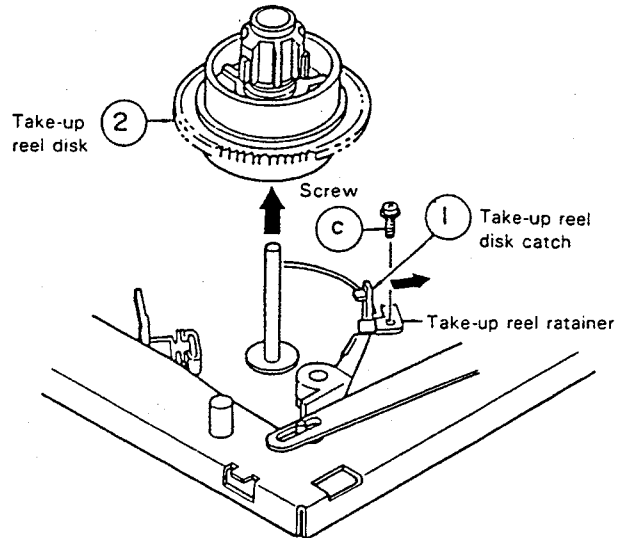


Figure 1-21.

● Reassembly (Supply reel disk)

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the supply reel disk catch ② and back tension lever ③.
3. Install a new supply reel disk ④ onto the shaft.
4. Replace the tension band ⑤ around the supply reel disk, and insert it to the hole of the tension arm.
5. Replace the supply reel retainer assembly ⑥ in place, and tighten up the screw ④.

Notes :

1. Take enough care not to deform the tension band during installation of the supply reel disk.
2. Be careful not to damage the supply reel disk gear, back tension lever, catch, or the like with tools.

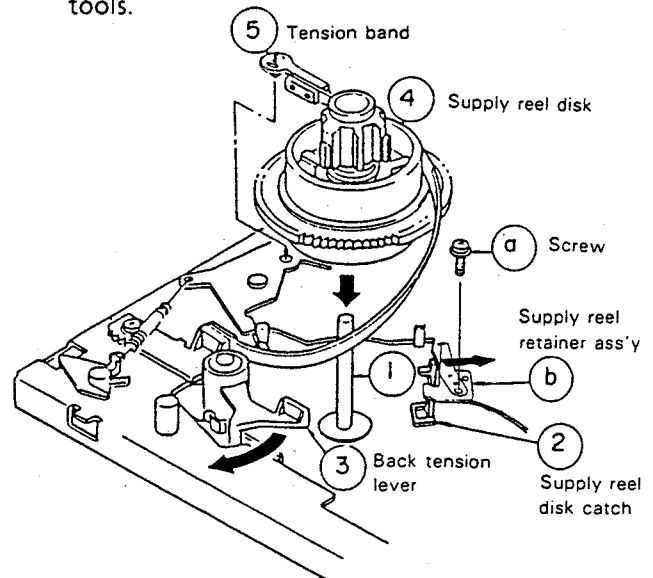


Figure 1-22.

● Reassembly (Take-up reel disk)

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the take-up reel catch ② and video search brake lever ③.
3. Install a new take-up reel disk ④ onto the shaft.
4. Replace the take-up reel retainer ⑤ in position and tighten up the screw ⑥.

Note :

Take care not to damage the video search brake lever.

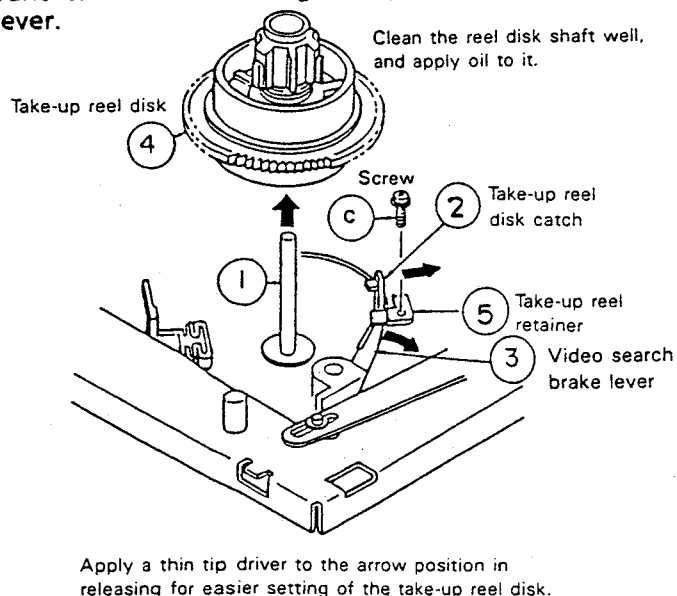


Figure 1-23.

- * After reassembly, check the video search rewind back tension (see page 18), and check the brake torque (see page 20).

● Height checking and adjustment

Note:

Place the master plane onto the mechanism unit, taking care not to hit the drum (see Figure 1-24)

1. For height adjustment, press the reel disk with a finger, and turn it right and left with a screwdriver (see Figure 1-26 (a)).

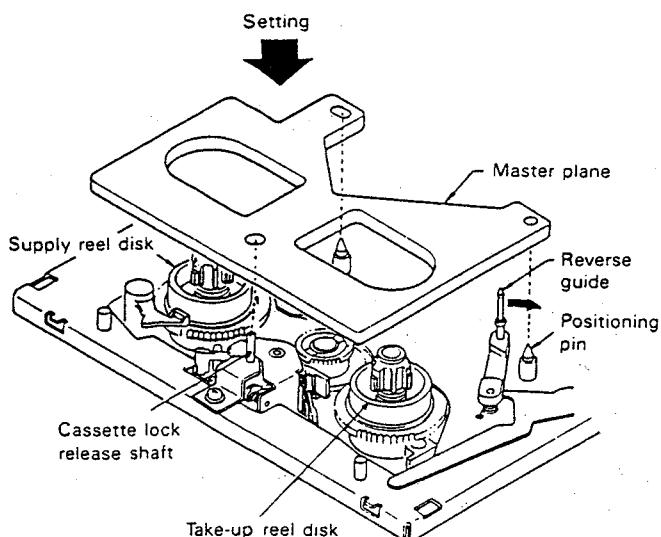


Figure 1-24.

Set the master plane releasing the reverse guide by a finger.

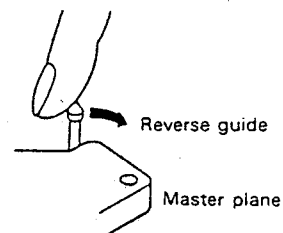
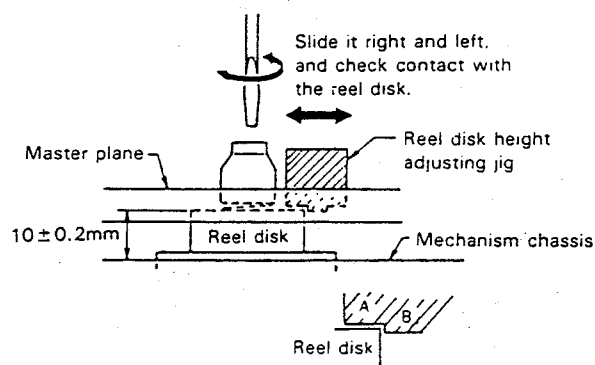
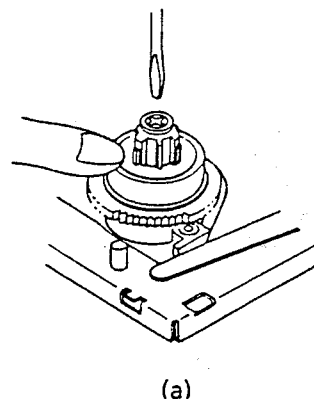


Figure 1-25.

2. Check that the reel disk is lower than part A but higher than part B. If the height is not correct, adjust the height adjusting screw (see Figure 1-26 (b)).

Note :

Whenever replacing the reel disk, perform the height checking and adjustment.



(b)
Figure 1-26.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN FAST FORWARD MODE

- Remove the cassette housing control assembly.
- Setting

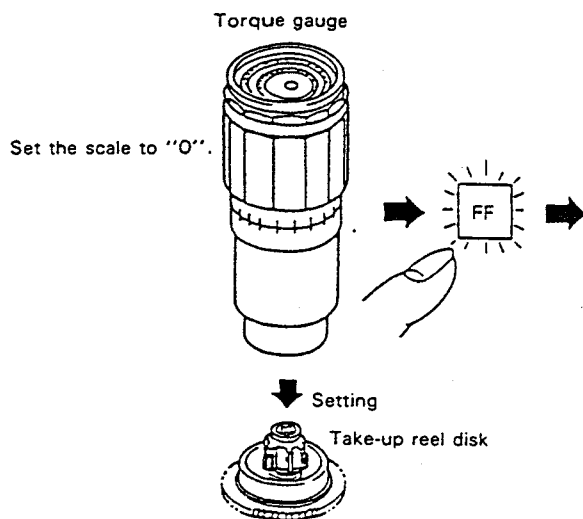


Figure 1-27.

• Checking

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction

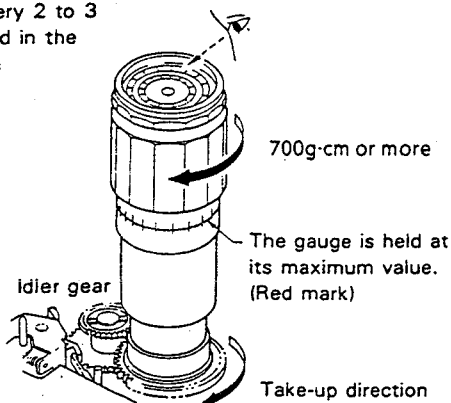


Figure 1-28.

• Adjustment

1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes :

1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN REWIND MODE

- Remove the cassette housing control assembly.
- Setting

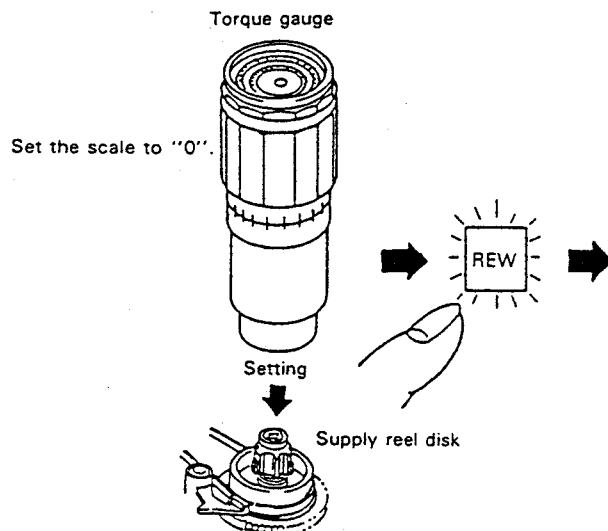


Figure 1-29.

• Checking

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction

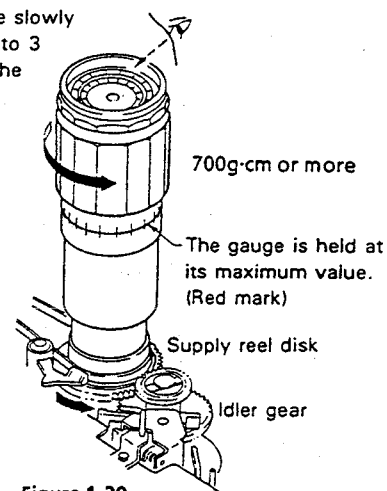


Figure 1-30.

• Adjustment

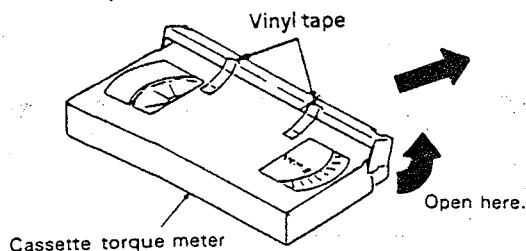
1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes :

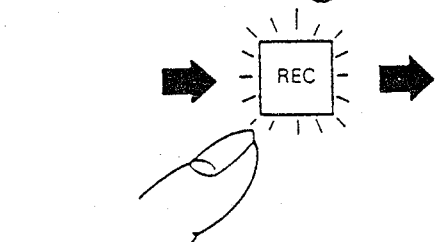
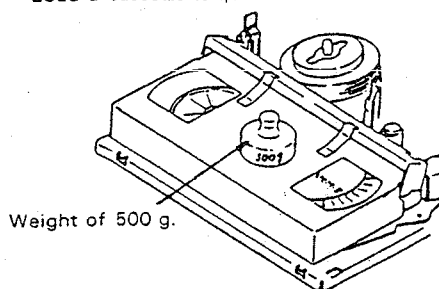
1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN PLAYBACK MODE

1. Remove the cassette housing control assembly.
2. Open the lid of the cassette torque meter, and hold it with piece of vinyl tapes.



Load a cassette torque meter into the unit.



Set value SP 95 ± 30 g.cm

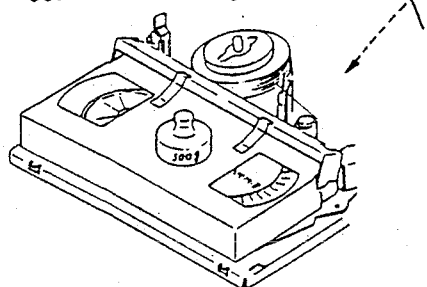


Figure 1-31.

• Checking

1. Check that the torque is in the range of 95 ± 30 g.cm.
2. The torque fluctuates due to the rotational deviation of the reel drive unit. Use the center of the fluctuation as the value.
3. Place the unit in the SP record mode, and check that the take-up torque is within the range.

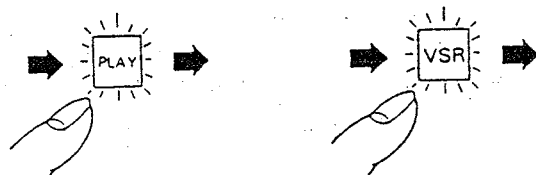
• Adjustment

If the take-up torque in the playback mode is outside the range, replace the take-up reel disk.

Note: Weight the cassette torque meter to prevent floating.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN VIDEO SEARCH REWIND MODE

- Remove the cassette housing control assembly.
- Checking



Push the play button to place the unit in the playback mode. Push the video search rewind button to place the unit in the video search rewind mode.

Place the torque gauge on the supply reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 170 ± 40 g.cm.

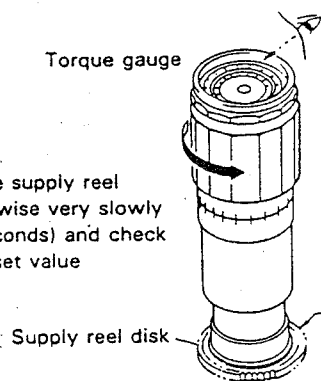


Figure 1-32.

Note:

Set the torque gauge securely on the supply reel disk. If it is not secure, the measurement will be incorrect.

• Adjustment

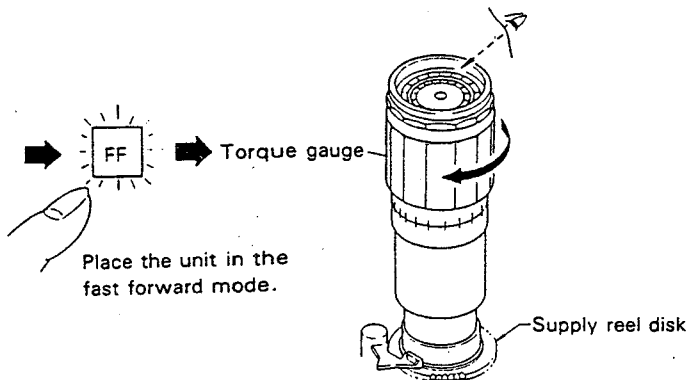
If the take-up torque in video search rewind mode is outside the range, replace the supply reel disk.

Note:

The torque fluctuates due to the rotational deviation of the supply reel disk. Use the center of the fluctuation at the value.

CHECKING THE FAST FORWARD BACK TENSION

- Remove the cassette housing control assembly.
- Checking



Place the torque gauge on the supply reel disk, and turn it clockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5 g·cm

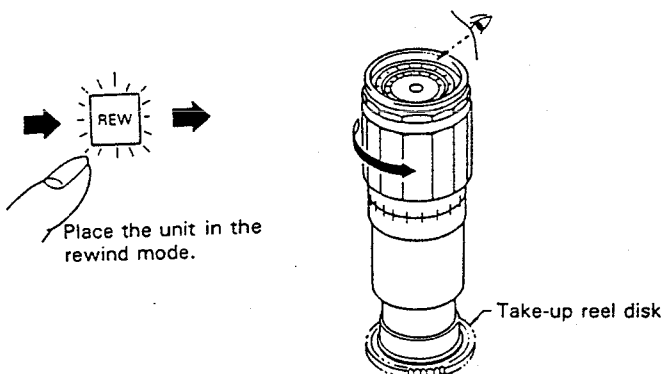
Figure 1-33.

Note :

Set the torque gauge securely on the supply reel disk. If the torque gauge is not securely set on the reel disk, measurement will be incorrect.

CHECKING THE REWIND BACK TENSION

- Remove the cassette housing control assembly.
- Checking



Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5 g·cm.

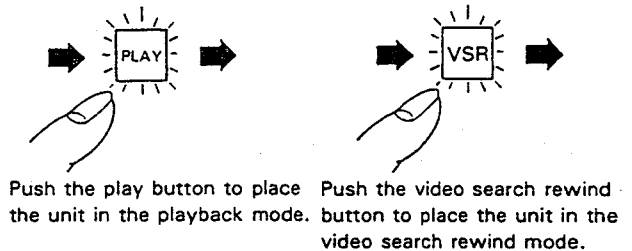
Figure 1-34.

Note :

Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

CHECKING THE VIDEO SEARCH REWIND BACK TENSION

- Remove the cassette housing control assembly.
- Checking



Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 45 ± 20 g·cm.

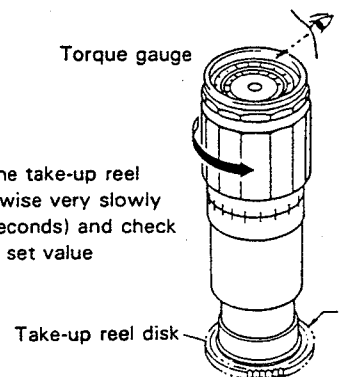


Figure 1-35.

Note :

Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

CHECKING THE PINCH ROLLER PRESSURE

- Remove the cassette housing control assembly.

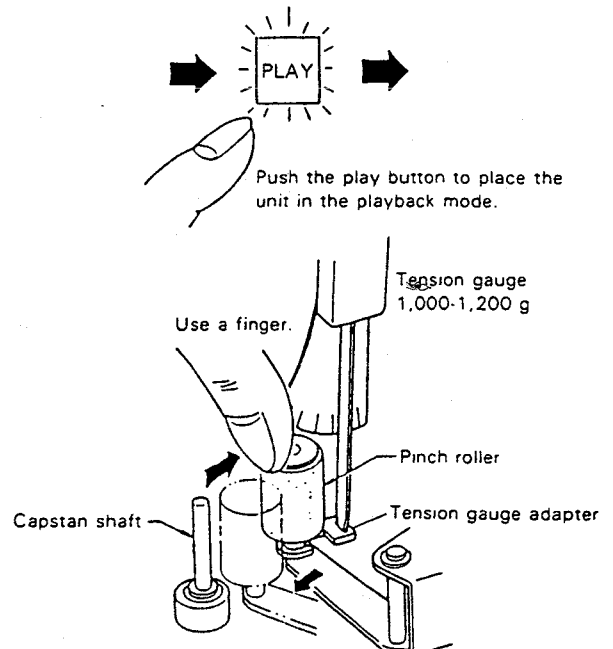


Figure 1-36.

1. Detach the pinch roller from the capstan shaft.
2. Set the tension gauge by hooking the tension gauge adapter onto the pinch roller shaft.
3. Gradually release the pressure to allow the pinch roller to touch the capstan shaft. When the pinch roller just touches the capstan shaft, read the indication on the gauge.
4. Check that the reading of the tension gauge is in the range of 1000 to 1200 g.

CHECKING AND ADJUSTMENT OF TENSION POLE POSITION

- Remove the cassette housing control assembly.
- Setting

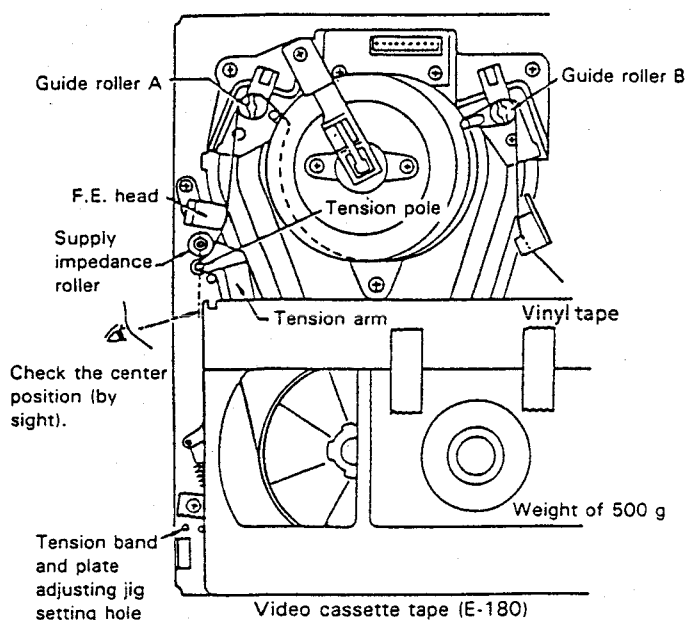
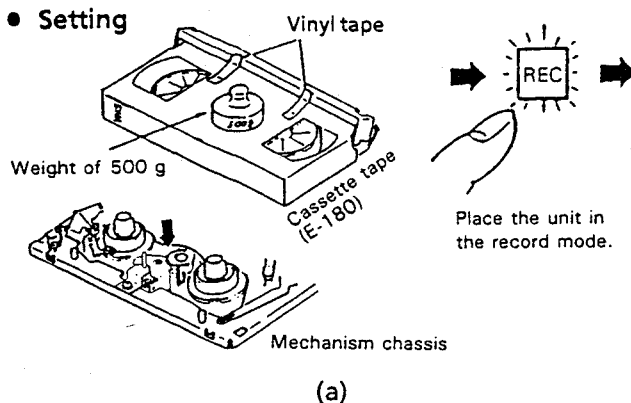


Figure 1-37.

• Checking

1. The guide rollers (A, B) operate to bring the tape outside the cassette tape and simultaneously the tension pole moves to the left, loading the tape. At that time (loading completed), check the position of the tension pole.

2. At the beginning of the tape (E-180), check that the tension pole's center is aligned with the supply impedance roller's center by sight.
3. Check that the end of the tape is neither curled against the flange of the supply impedance roller nor over it.
4. During the video search rewind mode with no cassette tape in place, check that the supply reel disk is free from the tension band.

• Position adjustment (record mode)

When the tension pole is at the right of the supply impedance roller's center:

Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting jig until it is in the set value range (center). The secure it with the tightening screw.

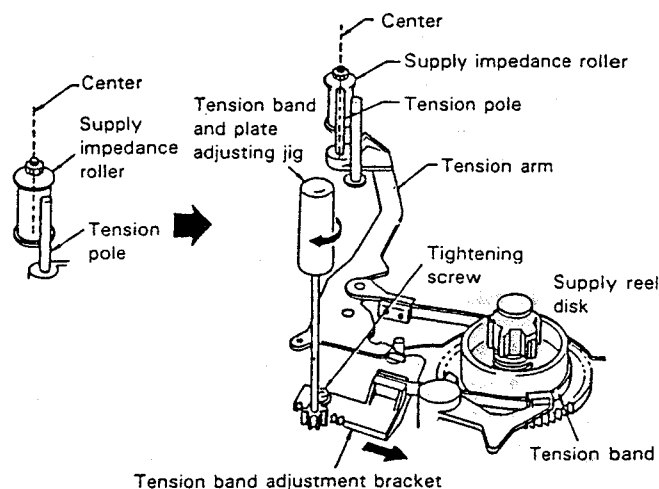


Figure 1-38.

• Position adjustment (record mode)

When the tension pole is at the left of the supply impedance roller's center:

Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting jig until it is in the set value range (center). The secure it with the tightening screw.

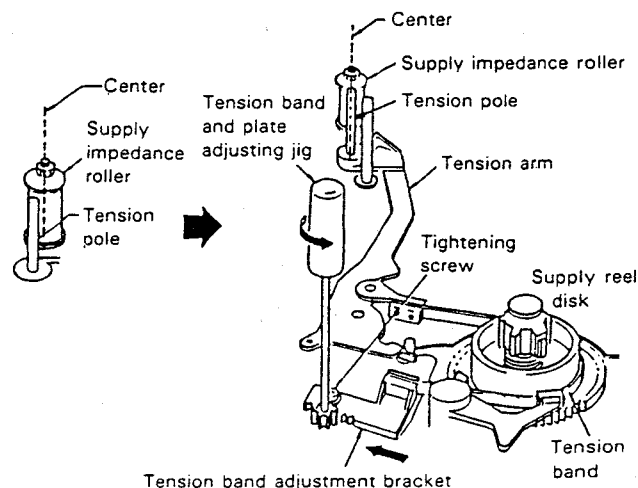


Figure 1-39.

CHECKING AND ADJUSTMENT OF RECORD /PLAYBACK BACK TENSION

- Remove the cassette housing control assembly.
- Checking

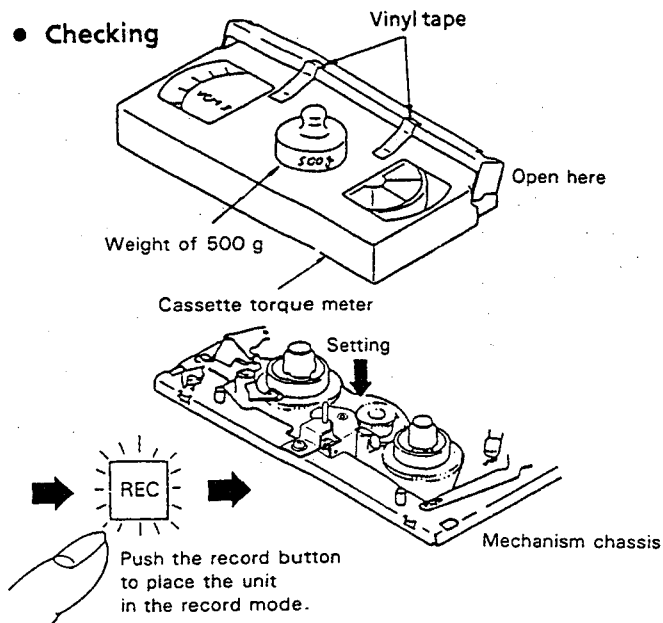


Figure 1-40.

1. Put a cassette torque meter into the unit.
2. Push the record button to place the unit in the record mode.
3. Check that the back tension indicated by the gauge is within the set range 23 to 28 g.cm.

Notes :

1. Make sure that the video cassette tape is over the retaining guide.
2. Make sure that the tape is not slack nor damaged at either end.

• Adjustment

1. If the reading of the cassette torque meter is less than specified, move the tip of the tension spring hook plate toward the hole A.
 2. If the reading of the cassette torque meter is more than specified, move the tip of the tension spring hook plate toward the hole B.
- * Put a thin screw driver (–) in the shaft hole, lean it toward you, and turn it for easier shift of the tension spring hook plate in the direction of A or B.

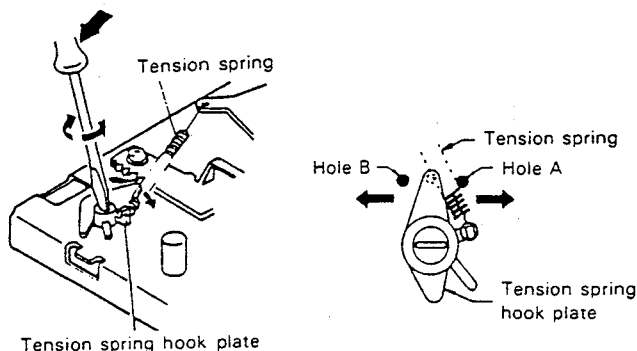


Figure 1-41.

CHECKING THE BRAKE TORQUE

- Checking the brake torque at the supply side

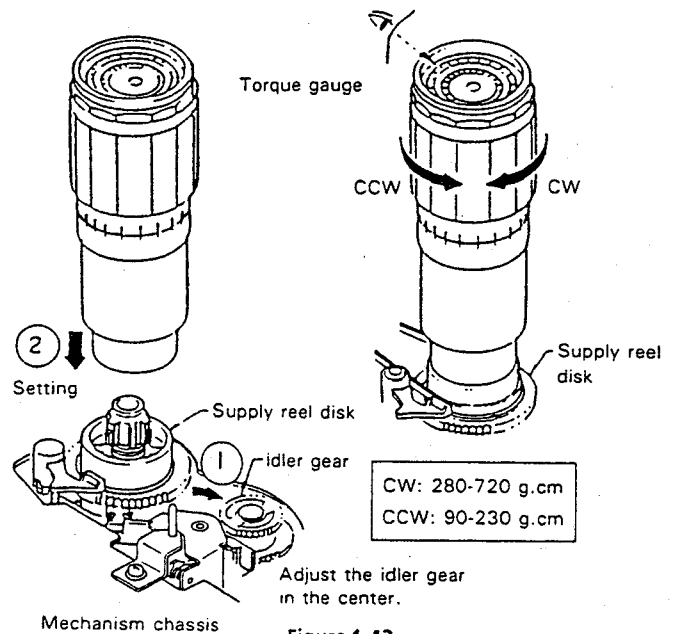


Figure 1-43.

1. Remove the cassette housing control assembly.
2. Place the mechanism in the stop mode by unplugging the power cord in the fast forward or rewind mode.
3. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the supply brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CW direction = 280 to 720 g. cm, CCW direction = 90 to 230 g.cm, and that the brake torque in the CW direction is at least twice as high as that in the CCW direction.

Figure 1-42. Not used.

● Checking the brake torque at the take-up side

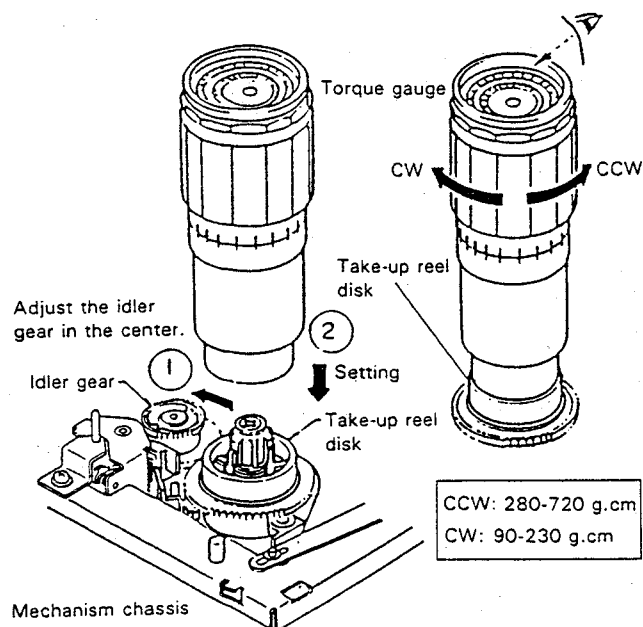


Figure 1-44.

1. Remove the cassette housing control assembly.
 2. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the take-up brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CCW direction = 280 to 720 g. cm, CW direction = 90 to 230 g.cm, and that the brake torque in the CCW direction is at least twice as high as that in the CW direction.
- Adjustment of the brake torque at the supply side and the take-up side
1. If the supply or take-up brake torque is outside the range, clean the supply or take-up reel disk break lever felt, then recheck the torque.
 2. If the supply or take-up brake torque is still outside the range, replace the main brake or the main brake spring.

REPLACEMENT OF MAIN BRAKE

1. Remove the reel belt and the reel block FFC.
2. Remove the cut washer ① off the brake shifter.
3. Unscrew the four screws ② and then the take-up reel retainer.
4. Remove the reel block assembly ④ downward.
5. Remove the cut washer ③ first and then the reel pulley.
6. Unscrew the two screws ④ and detach the idler assembly.
7. Unhook the back tension lever spring ⑤ and remove the back tension lever ⑥. (Undo the hook under the reel chassis.)
8. Open the shifter latch ⑦ and remove the brake shifter assembly ⑧.
9. Release the reel disk catches ⑩ and then remove the left and right reel disk assemblies ⑨ and ⑩.
10. Finally remove the main brake levers ⑪ and main brake spring ⑫.

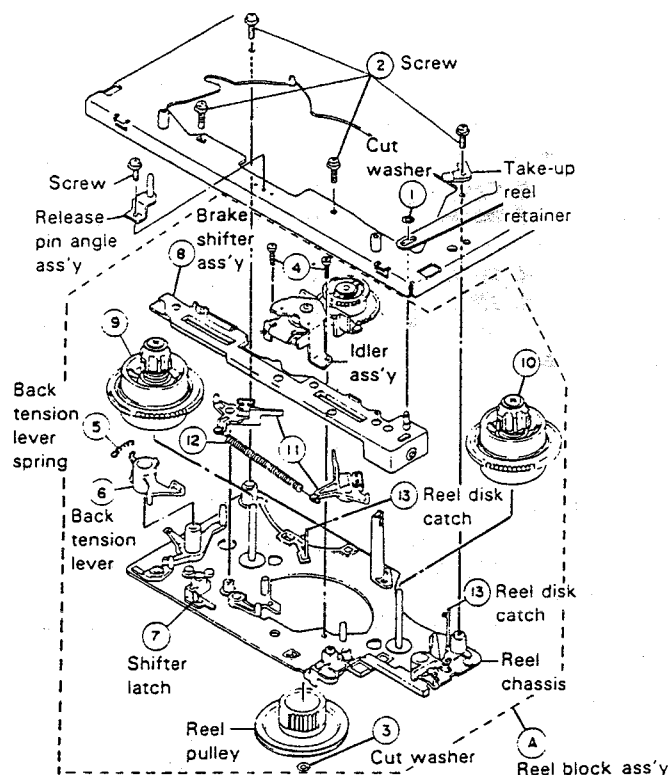


Figure 1-45.

Note:

When the main brake is replaced, perform the height checking and adjustment (see page 15), and the brake torque checking (see page 20).

REPLACEMENT OF A/C (Audio/Control) HEAD

1. Remove the cassette housing control assembly.
2. Place the unit in the unloading mode, and unplug the power cord.

● Removal

1. Loosen the tilt adjusting screw ①.
2. Remove the azimuth adjusting screw ②.
3. Remove the A/C head screw ③.
4. Unsolder the A/C head PWB soldered to the A/C head assembly.

Note :

1. After replacement, be sure to perform the adjustment of the tape drive train (see page 24). Under any circumstances, avoid touching the head. Clean the head, if touched with your finger, with alcohol.
2. Take care that the azimuth spring does not fly off when removing the A/C head screw.

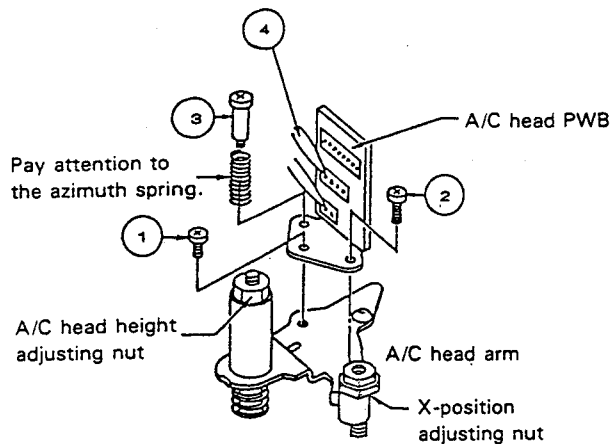


Figure 1-46.

● Replacement

1. Solder the removed A/C head PWB onto a new A/C head assembly.
2. The A/C head assembly is attached so that the A/C head arm and A/C head plate are roughly parallel to each other.

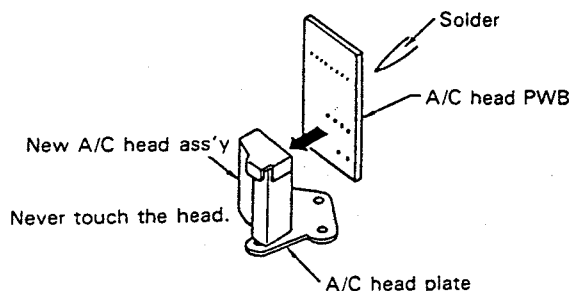


Figure 1-47.

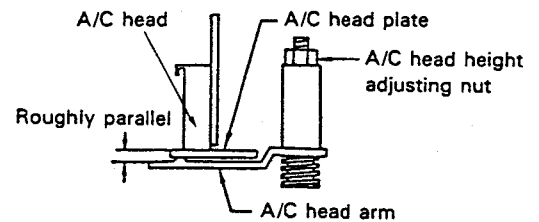
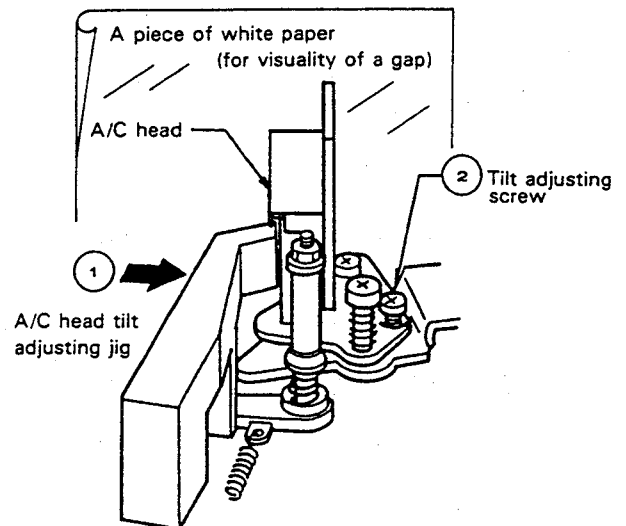


Figure 1-48.

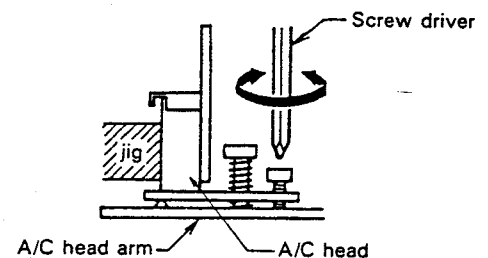
● Adjustment

[A/C head tilt angle]

1. Set the mechanism to the loading mode.
2. Place the A/C head tilt adjusting jig.
3. Slowly turn the tilt adjusting screw with a screw driver until there is no gap between the jig and the A/C head.



(a)



(b)

Figure 1-49.

[A/C head height rough adjustment]

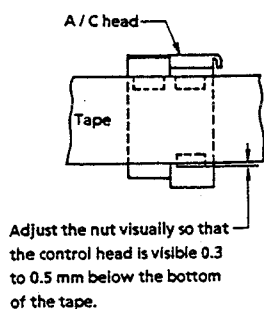
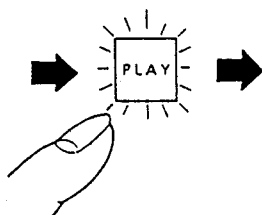
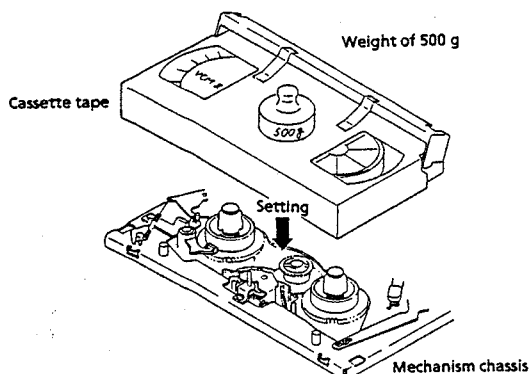
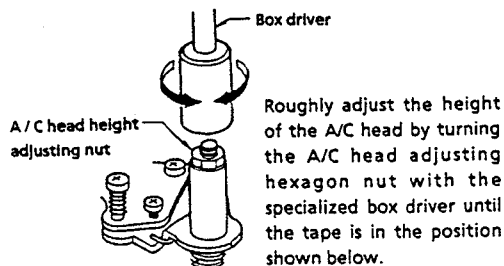


Figure 1-50.

HEIGHT ADJUSTMENT OF RETAINING GUIDE AND REVERSE GUIDE

Note :

Before the rough adjustment of the tape drive train, check that the retaining guide height is within the value in Figure 1-51 by using the special jigs.

[Height adjustment of retaining guide]

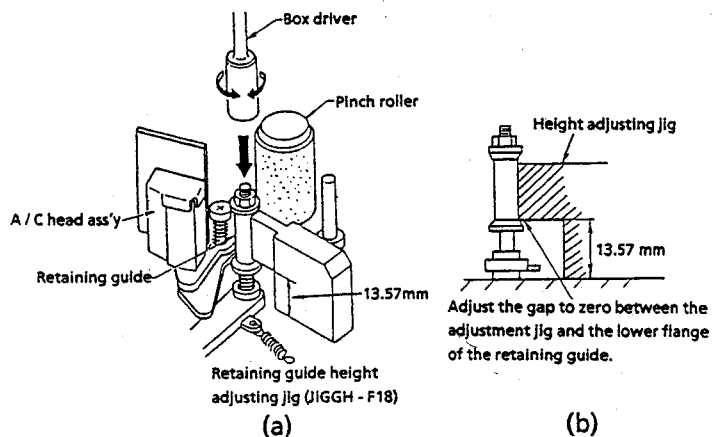
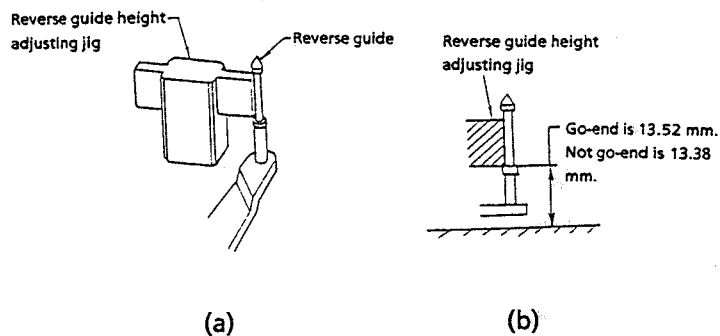


Figure 1-51.

[Height adjustment of reverse guide]



To readjust the height, remove the cut washer from behind, take out the spring, lift the reverse guide and add a washer.

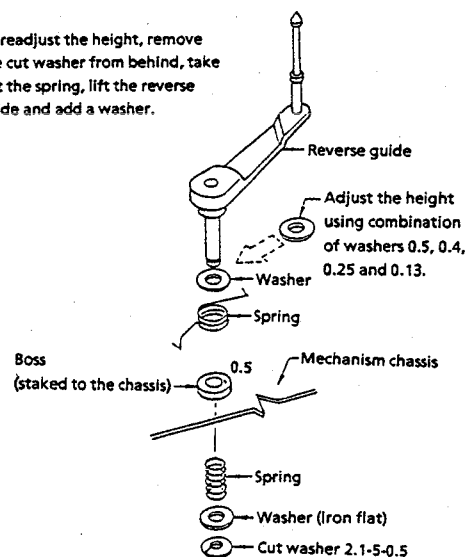


Figure 1-52.

ADJUSTMENT OF TAPE DRIVE TRAIN

1. Remove the cassette housing control assembly.
2. Check and adjust the position of the tension pole. (See page 18.)
3. Check and adjust the video search rewind back tension. (See page 18.)
4. Set the tilt angle of the A/C head. (See page 22.)
5. Rough adjustment of tape drive train.
 - a) Connect the oscilloscope to the test point for PB CHROMA envelope output (TP501). Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP502).
 - b) Loosen the setscrew at the lower part of the guide roller, and adjust it with an adjusting screw driver (JIGDRIVERH-4) so that the guide roller turns smoothly. (Do not overloosen the setscrew, which causes insecurity of the guide roller.) (See Figure 1-53.)
 - c) Set the alignment tape (monoscope pattern) on the reel disk, and place the unit in the playback mode. (Place a 500 g. weight on the cassette tape to prevent floating of the cassette tape.)

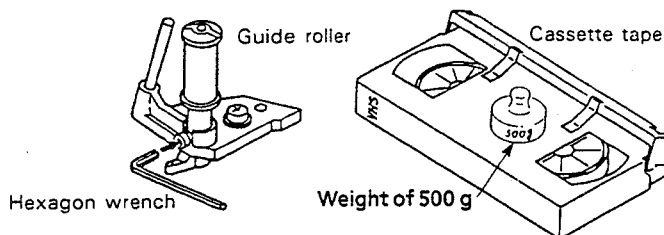


Figure 1-53.

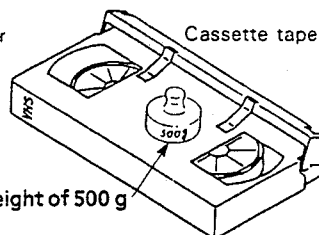


Figure 1-54.

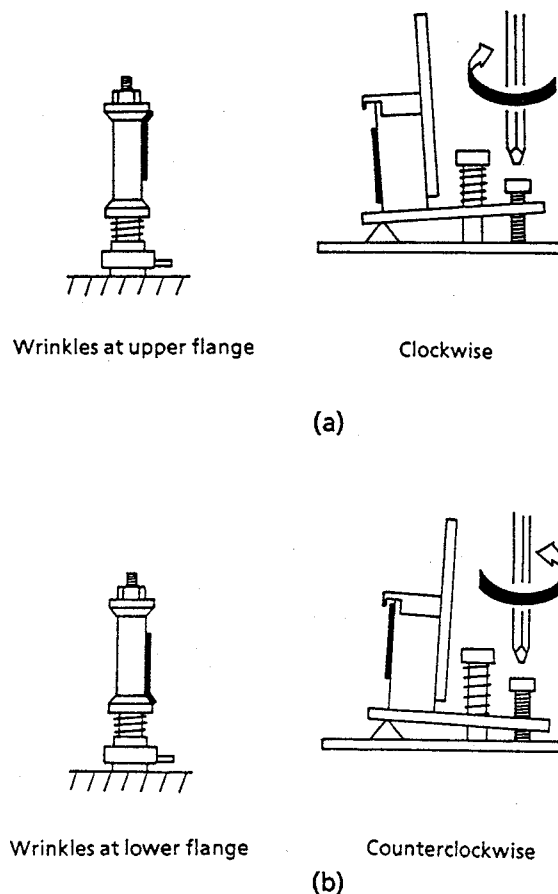


Figure 1-55.

- d) Change the envelope waveform from MAX to MIN, and MIN to MAX by pushing the (+) or (-) tracking button, and check a flat response is obtained on the waveform.
- e) If a flat response cannot be obtained, roughly adjust the guide rollers on the supply side and take-up side using an adjusting screw driver until a flat response can be obtained.
- f) Turn the A/C head tilt adjusting screw with a screwdriver to prevent the tape from wrinkling at the upper and lower flanges of the fixed guide.
 - 1) Wrinkles at the upper flange : Turn the above adjusting screw clockwise, as shown in Fig. 1-55(a)
 - 2) Wrinkles at the lower flange : Turn the above adjusting screw counterclockwise, as shown in Fig. 1-55 (b)

Notes:

1. Place the tracking control in the center position, and adjust the X-position adjusting nut so that the PB CHROMA envelope becomes maximum for easier rough adjustment of the tape drive train.
2. In the rough adjustment, pay particular attention to the outlet side.

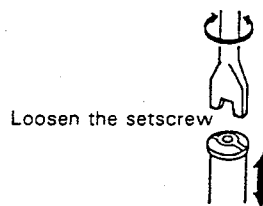


Figure 1-56.

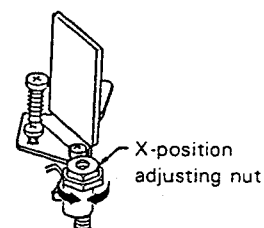


Figure 1-57.

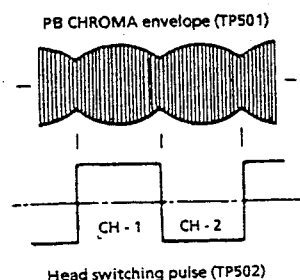


Figure 1-58.

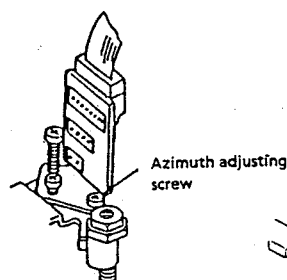


Figure 1-59.

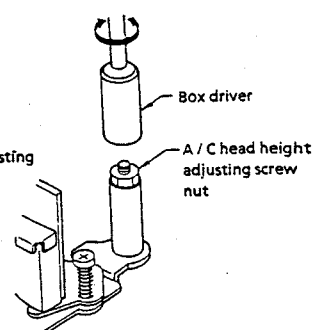


Figure 1-60.

6. Adjustment of A/C head height and azimuth

- Connect an oscilloscope to the audio output terminal.
- Use the alignment tape and play back its audio 7 kHz signal (monoscope pattern for video signal). Adjust the azimuth adjusting screw to obtain the maximum audio output on an oscilloscope. (See Figure 1-59.)
- Use the alignment tape and play back its audio 1 kHz signal (colour bar for video signal) and slowly rotate the A/C head height adjusting nut with the special box driver to obtain the maximum audio output.
- Perform the adjustment in b) again.
- After this adjustment, apply glyptal to the screws and nuts to fix them.

7. Adjustment of tape drive train and X-Position.

- Connect the oscilloscope to the test points (TP501) for PB CHROMA envelope output. Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP502).
- Play back the tape drive train alignment tape.
- Push the (+) or (-) button to change the envelope waveform from MAX to MIN, and MIN to MAX. Adjust the guide roller's height on the supply and take-up sides with an adjusting screw driver, to obtain an envelope waveform that is as flat as possible.
- If the tape is above or below the helical lead, the PB CHROMA waveform will take the shape shown in Figure 1-61.
- Adjust for maximum flatness of the envelope as the step 5, e) in page 24.

	When the tape is above the helical lead.		When the tape is below the helical lead.	
	Supply side	Take-up side	Supply side	Take-up side
Adjustment	Supply side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Supply side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The supply side guide roller is then rotated in the clockwise direction to flatten the envelope.	Take-up side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The take-up side guide roller is then rotated in the clockwise direction to flatten the envelope.

Figure 1-61.

- f) Push the (+) or (-) tracking button to check that a flat response is obtained on the envelope waveform.
 - g) Secure the guide roller by tightening the guide roller setscrew in the unloading mode.
 - h) Play back the tape drive train alignment tape to check that the envelope waveform does not change.
8. Adjustment of A/C head X-position.
- a) Push the (+) and (-) tracking buttons at the same time to the preset mode.
 - b) Rotate the X-position adjusting nut with the specialized box driver, and adjust the A/C head position for maximum head switching pulse low side envelope.
 - c) Adjust the playback switching point.
 - d) Check the flatness of the envelope waveform and sound by playing back a recorded tape.

X-position adjusting nut

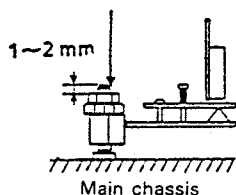


Figure 1-62.

REPLACEMENT OF THE CAPSTAN D.D. (DIRECT DRIVE) MOTOR

- Remove the cassette housing control assembly.
- Removal (Follow the order of indicated numbers.)

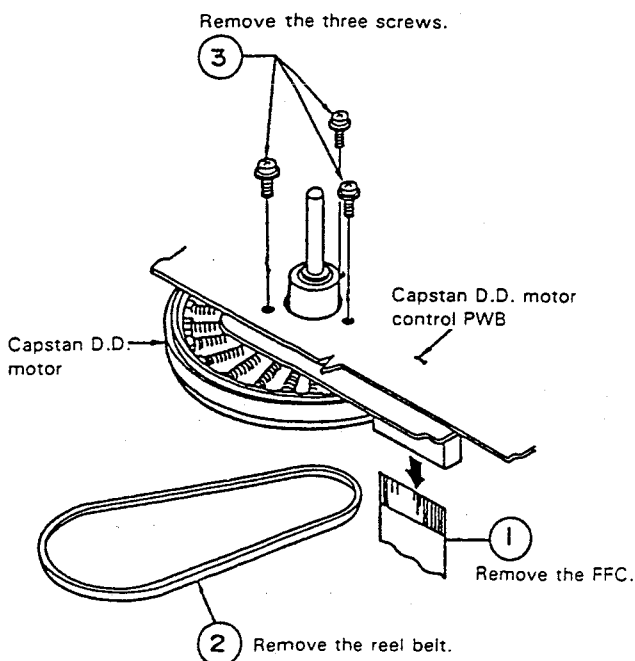


Figure 1-63.

• Reassembly

1. Mount the capstan motor on the mechanism chassis making sure not to allow the capstan shaft to hit the mechanism chassis, and attach it with the three screws.
2. Insert the FFC into the capstan D.D. motor control PWB.
3. Attach the reel belt.

Notes :

1. After installing the capstan D.D. motor, be sure to rotate the copstan D.D. motor and check the movement.
2. Check and adjust the servo circuit.

REMOVAL AND REASSEMBLY OF THE LOADING GEAR BLOCK

Notes : The following explanation is based on 4-head models. (The slow brake spring and slow brake lever are not provided on 2-head models.)

1. Remove the cassette housing control assembly.
2. Remove the reel belt.
3. Remove the reel block.

• Removal

Notes :

1. Use care not to deform the parts hooked to the slow brake shaft cap, take-up loading gear, and supply loading gear as shown in Figure 1-64.

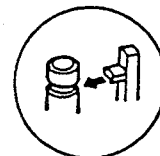


Figure 1-64.

2. In removing the loading gear, secure the guide roller with a rubber band or the like beforehand for easier reassembly.

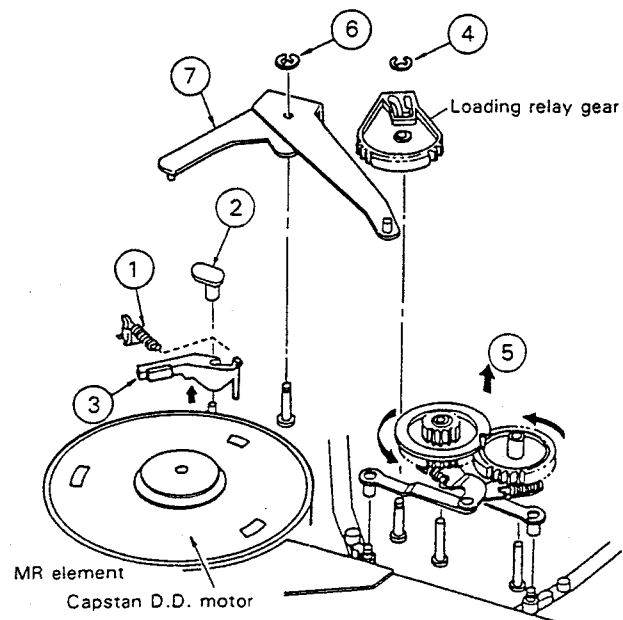


Figure 1-65.

1. Remove the slow brake spring ①.
2. Remove the slow brake shaft cap ②.
3. Remove the slow brake lever ③.
4. Remove the E ring ④.
5. Rotate the take-up loading gear, take-up loading arm assembly, supply loading gear and supply loading arm assembly slightly in the loading direction, and take them ⑤ all out.
6. Remove the E ring ⑥.
7. Remove the relay gear drive lever ⑦.

● Reassembly

Reverse the procedure. Be sure to match the tally marks on the gears.

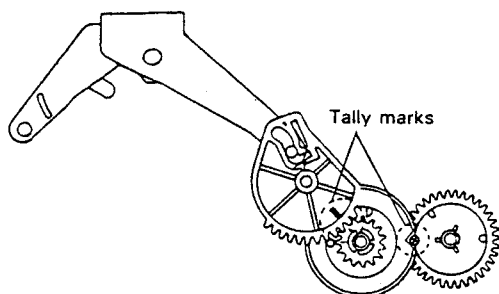


Figure 1-66.

Notes :

1. When reassembling, apply specified grease to the following points; all the gear teeth, all the gear shafts and the cam groove of loading relay gear.
2. Be careful not to deform the supply/take-up loading arms.
3. Be careful to keep clean the slow brake lever felt.
4. Be also careful to keep the outer surface of the capstan D.D. motor free from dust and dirt. (If stained, the MR (Magnet Resistor) element might be damaged.)
5. Take care not to deform the anti-fall hooks of the slow brake shaft cap and supply/take-up loading gears more than required.

REMOVAL AND REASSEMBLY OF LOADING BLOCK

● Removal

1. Remove the leads ①.
2. Remove the cassette loading belt ②.
3. Unscrew the three screws ③.
4. Pull the loading block upward.

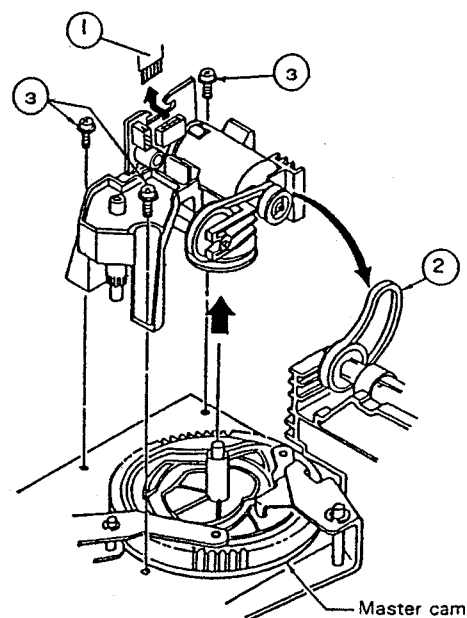


Figure 1-67.

Note :

When using a magnetic screw driver in removal of three screws, do not allow the magnetic driver to hit the A/C head or drums.

● Reassembly

1. Turn the master cam all the way counter-clockwise.
2. Match the tally mark on the cam switch with the mating mark. Fit the loading block and the master cam with each other. Tighten up the three screws.

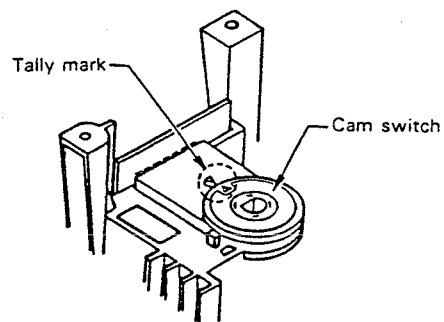


Figure 1-68.

3. Finally connect the leads and apply the cassette loading belt.

Notes:

1. Be careful not to scratch the gear.
2. Be careful not to stain the belt. If dirty, clean it up with the specified cleaning liquid.

REPLACEMENT OF LOADING MOTOR

1. Set the cassette ejected condition by placing the unit in the cassette eject mode.
2. Unplug the power cord.
3. Remove the loading block in accordance with the statements and drawings above.

● Removal

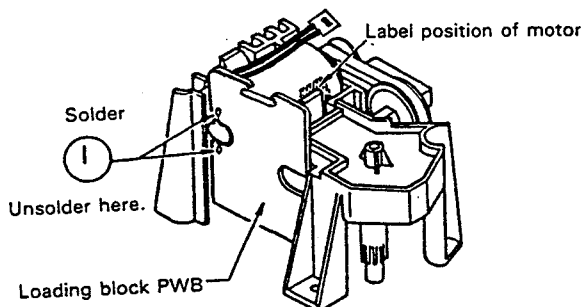
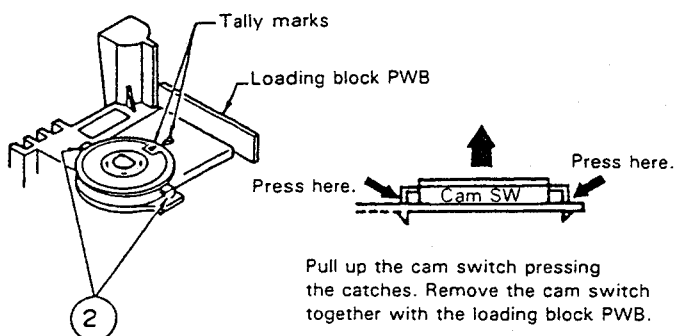


Figure 1-69.

1. Unsolder the leads ① from the loading motor.
2. Unlock the left and right catches ② of the cam switch off the loading block. Take out the cam switch and loading block PWB (See Figure 1-70).



Catches of cam switch

Figure 1-70.

3. Take out the loading belt ③.
4. Pry up the back end of the loading motor with a screwdriver or the like as in Figure 1-71 and take out the motor.

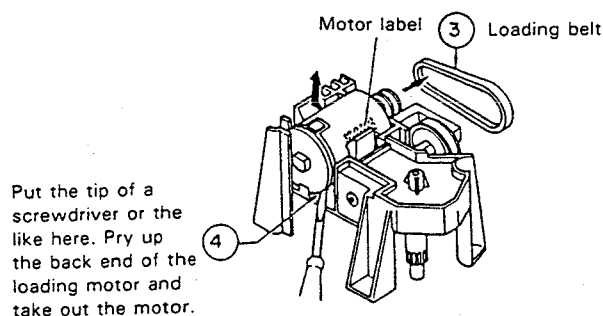


Figure 1-71.

● Reassembly

1. Remove the loading motor, and mount a new loading motor as in Figure 1-72.
2. Place the loading motor so that its label is visible as shown in Figure 1-72. Make sure that the screw hole at the motor shaft, protuberance on the loading block, and the motor's back end marked with the arrow are mated with each other.

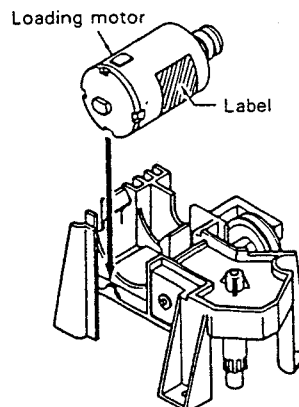
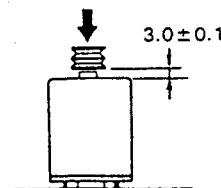


Figure 1-72.



Note:
When press-fitting the loading motor pulley, keep the pressure less than 5 kg, and the gap between the motor and pulley should be 3.0 ± 0.1 mm.

Figure 1-73.

3. Set the loading block PWB and the cam switch in position.
4. Resolder the leads to the loading motor.
5. Finally place the loading block (See page 27).
6. Attach the loading belt.

REPLACEMENT OF MASTER CAM

● Removal

1. Remove the E ring ①.
2. Remove the half-loading drive lever ②.
3. Remove the E ring ③.
4. Remove the pinch roller lever ④.
5. Pull out the master cam ⑤ upward.

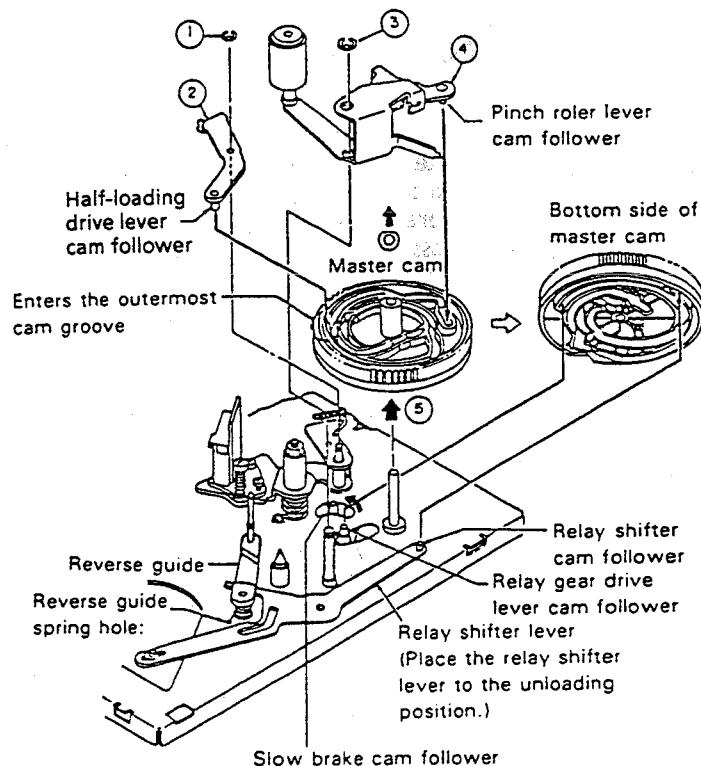


Figure 1-74.

● Reassembly

1. Place the relay gear drive lever in the unloading state.
2. Place the relay shifter so that it is in contact with the reverse guide spring hole in the mechanism chassis. Release the slow brake lever with a finger to bring it away from the capstan (in the direction of arrow). Then place the master cam so that the D cut-off part of the master cam faces the direction of arrow.
3. Place the half loading reciprocating lever's cam follower so that it fits in the master cam's circumferential cam groove (marked with arrow), attach the E ring, then mount the half loading reciprocating lever.
4. Turn the master cam somewhat clockwise until the pinch roller lever's cam follower goes into the master cam's groove (marked with arrow). Mount the pinch roller lever and then attach the E ring.
5. Rotate the master cam by hand to make sure all the four levers (relay gear drive lever, half loading reciprocating lever, pinch roller lever, and relay shifter lever) are in the cam grooves in place.
6. Mount the loading block. (See page 27.)

Notes :

1. Be careful not to scratch the teeth and grooves of the master cam.
2. After installation of the master cam, be sure to rotate the master cam by hand before installing the loading block. If the levers are in wrong position, the master cam and the levers may get damaged when the motor starts.
3. Apply specified grease to the master cam's grooves and teeth.

REPLACEMENT OF DRUM ASSEMBLY

Note :

The gap between the lower drum and the upper drum is very accurate, in the order of microns, and care should be paid to their replacement. Even a slight amount of foreign material will affect the accuracy of their reassembly.

- Replacement (Follow the order of the indicated numbers.)

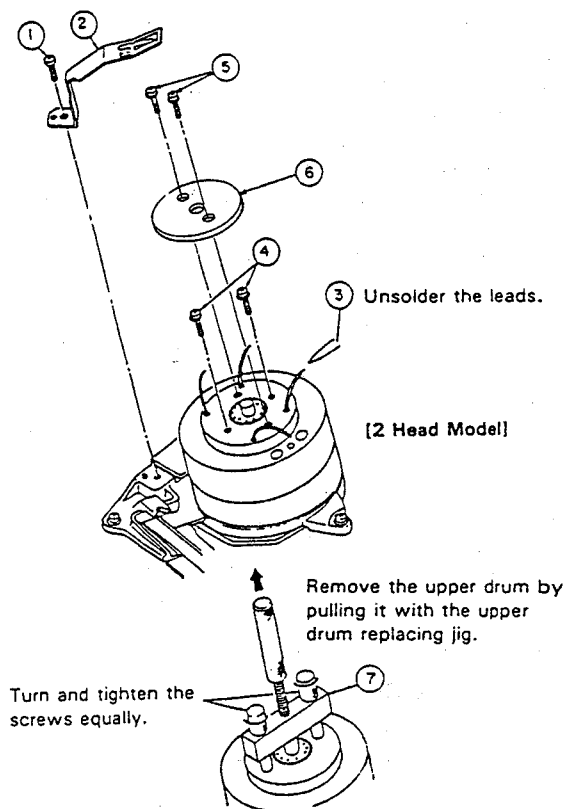


Figure 1-75.

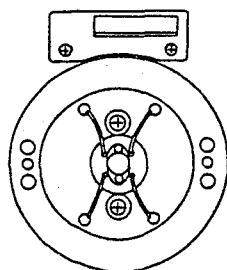
Notes :

1. Avoid touching the drum surface with bare hands.
2. Pull out the upper drum with care so that it may not be tilted, and replace it with the upper drum replacing jig using care not to damage the disk circumference.
3. Do not hit the screws when tightening them.

● Reassembly

Notes :

1. Before setting the drum, check that there are no scratches or dust on the edge of the surface and circumference of the disk.
2. Before setting the drum, check that there are no scratches or dust on the internal surface and edge of the surface of the upper drum.
3. On assembling these parts, insert the upper drum onto the disk with care, so that the upper drum is not tilted.
4. When assembling these parts, do not allow dust or dirt come between the disk and the upper drum.
5. Do not use excessive force when driving in the screws.



[2 Head Model]

Figure 1-76.

1. Set the new drum.
2. Fasten the upper drum in place with the two screws.
3. Solder the leads.
Note: Soldering should be performed quickly and carefully without touching adjacent patterns.
4. After replacement, be sure to check the tape drive train adjustment (see page 24.) and the following electric adjustments.
 - Adjustment of the playback switching point.
 - Checking and adjustment of the X-position

REPLACEMENT OF D.D. MOTOR

1. Put the unit in the cassette eject position.
2. Unplug the power cord.

● Removal (Reverse the order in reassembly.)

1. Remove the FFC ①.
2. Remove the two D.D. rotor assembly setscrews ②.
3. Pull out the D.D. rotor ③.
4. Remove the three D.D. stator setscrews ④.
5. Remove the D.D. stator assembly ⑤.

Notes :

1. When removing the D.D. rotor assembly or D.D. stator assembly, use care not to hit the loading relay gear.
2. Secure the D.D. rotor assembly so that the installation positioning holes in the D.D. rotor assembly and lower drum assembly match.
3. Be careful not to damage the upper drum or the video head.
4. Be sure that the hall device and the D.D. stator assembly are not damaged by the D.D. rotor assembly or other parts.
5. After installation, adjust the playback switching point.

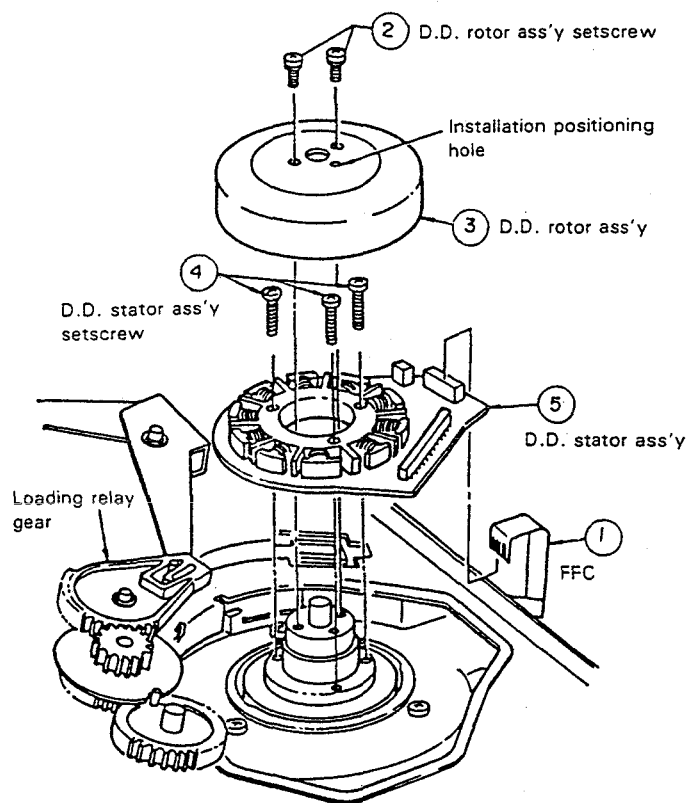


Figure 1-77.

■ ADJUSTMENT OF SERVO CIRCUIT

Adjustment of playback switching point

Measuring instrument	Oscilloscope
Mode	Playback Tracking button at center
Tape used	Alignment tape (VROCPSV)
Test point	CH-1; TP502 CH-2; Video output terminal (CH-1 trigger slope switch at (+), Internal trigger at CH-1 side)
Adjusting point	R757 (phase generator MM control)
Specification	$6.5 \pm 0.5H$

1. Insert the alignment tape (VROCPSV) and put the unit in playback mode.
2. Press both tracking control button at the same time to set the tracking in center.
3. Adjust R757 (phase generator MM control) so that the edge of the head switching pulse is $6.5H$ (Line) ahead of the vertical sync as shown in Figure 2-2.

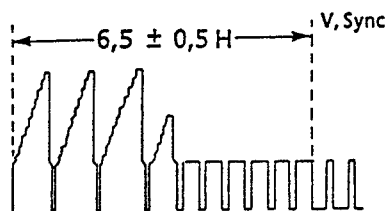


Figure 2-2.

Adjustment of slow tracking preset

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape.
Input signal	Commercial broadcast or video signal (external input selector switch)
Test Point	Monitor screen
Adjusting point	Tracking control button (+), (-)
Specification	No noise bar on the monitor TV screen.

1. Receive a commercial broadcast signal, or feed the video signal to the video input terminal (with the external input selector switch).
2. Press the slow button on the remote control to have playback the recorded portion in the slow mode.
3. Make D5003 (cathode side) in Timer Unit and pin 27 of IC5001 short-circuited and check that the fluorescent display tube light up.
4. Make D5003 and pin 27 of IC5001 circuited and check that the fluorescent display tube indicates "CASS".
5. Observing the monitor screen, adjust the tracking control button until the noise bar disappears from the screen.
6. Press the playback button to play back the tape. Then push the pause/still button to reproduce the recording in the still mode. Now make sure there is no noise on the screen. (Repeat this step three times or so.)

Adjustment of still picture vertical sync (FV)

Measuring instrument	Monitor TV
Mode	Still picture playback
Tape used	Self-recording tape
Test point	Monitor screen
Adjusting point	Tracking control button (+), (-)
Specification	No vertical jitter

1. Play back the tape self-recorded.
2. Press the pause/still button to reproduce the recording in the still mode.
3. Observing the monitor screen, adjust the tracking control button until the vertical jitter disappears from the screen.
4. Then play the tape self-recorded and make sure there is no vertical jitter on the monitor screen.

■ ADJUSTMENT OF Y/C RECORDING CIRCUIT

Adjustment of EE level

Measuring instrument	Oscilloscope
Mode	EE (External input)
Input signal	Standard colour bar (stair-case waveform)
Test point	Pin ⑨ of IC201
Adjusting point	R203 (EE level control)
Specification	$2.0 \pm 0.1 \text{ Vp-p}$

1. Set the unit ready for External input.
2. Feed the colour bar signal to the Video input terminal. Observe the voltage of the pin 9 of IC201 on the oscilloscope screen, adjust R203 (EE level control) to obtain the value indicated in Figure 2-3.

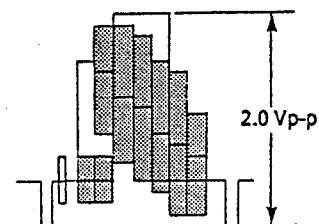


Figure 2-3.

Adjustment of FM 3.8 MHz and 4.8 MHz)

Measuring instrument	Frequency counter	Oscilloscope
Mode	Recording	Self-recording / playback
Input signal	External input (no signal)	Standard colour bar (stair-case waveform)
Test point	TP301 (Sig) TP302 (GND)	Video Output terminal
Adjusting point	R205 (FM carrier control)	R204 (deviation control)
Specification	3.8 MHz $\pm$ 50kHz	1.0 $\pm$ 0.04 Vp-p

Note. 1:

Carry out this adjustment only when IC201 has been replaced or when the carrier setting (3.8 MHz) or the deviation (4.8 MHz) is found apparently out of specification.

Make this adjustment after the EE level has been completely adjusted.

Note. 2:

The video output terminal should be terminated with a 75-ohm impedance.

1. First make sure that the EE video signal level is at the specified level.

Note:

Make sure the white clip control is not now applied to the waveform.

2. Place the unit in the record mode and get it ready for external input.

Note:

Do not connect anything to the external input terminal.

3. Hook up the frequency counter to TP301 and TP302. Adjust R205 (FM carrier control) so that the counter reading be 3.8 MHz.
4. Feed the colour bar signal (stair-case waveform) and make self-recording and playback.
5. Observe the video output terminal voltage (across the terminal resistor) on the oscilloscope screen. If the playback video signal level is above 1.0 Vp-p, turn R204 (deviation control) clockwise. If below 1.0 Vp-p, turn the control counter-clockwise. Now make self-recording and playback again.
6. Repeat the above step 5 to finally get the playback video signal level at 1.0 ± 0.04 Vp-p, as shown in Figure 2-4.

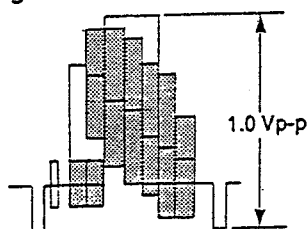


Figure 2-4.

Adjustment of white clip

Measuring instrument	Oscilloscope
Mode	EE (External input)
Input signal	Standard colour bar (stair-case waveform)
Test point	TP201
Adjusting point	R206 (white clip control)
Specification	80 $\pm$ 4%

1. Place the unit ready for external input.
2. Feed the colour bar signal to the video input terminal.
3. Turn R205 clockwise to maximum position.
4. Observing the output at TP201, adjust R206 (white clip control) so that the white peak overshoot be $80 \pm 4\%$.
5. Make sure that the dark peak overshoot is $50 \pm 10\%$.

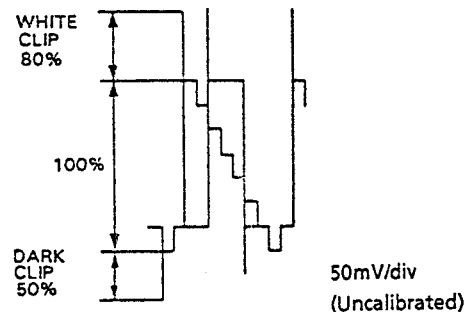


Figure 2-5.

Adjustment of recording current

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	Standard colour bar (stair-case waveform)
Test point	TP301 (GND at TP302) External trigger (video output terminal)
Adjusting point	R208 (recording Y control) R504 (recording chroma control)
Specification	Sync tip level 140 $\pm$ 10mVp-p Red level 24 $\pm$ 2mVp-p

Note:

TP301 and TP302 are located on the head amp PWB.

1. Place the unit to the record mode.
2. Feed the colour bar (stair-case waveform) signal.
3. Observing the waveform on the oscilloscope screen (external trigger at video output terminal), take the following steps.
 - a) Connect the oscilloscope's GND and SIG leads to TP302 and TP301, respectively.
 - b) Turn R208 (recording Y control) to minimum.
 - c) Adjust R504 (recording chroma control) so that the red level be $24 \pm 2\text{mVp-p}$ as shown in Figure 2-6.
4. Adjust R208 (recording Y control) so that the sync tip be $140 \pm 10\text{mVp-p}$ as shown in Figure 2-7.

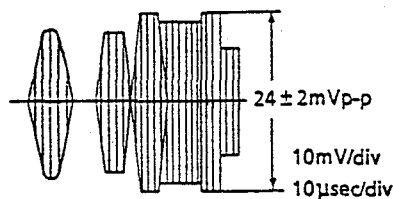
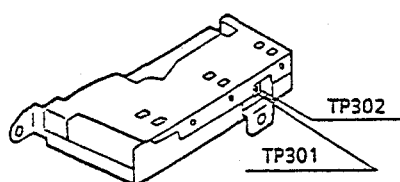


Figure 2-6.



HEAD AMP. UNIT

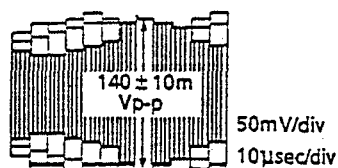


Figure 2-7.

■ ADJUSTMENT OF THE Y/C PLAYBACK CIRCUIT

Adjustment of playback video signal level

Measuring instrument	Oscilloscope
Mode	Playback
Tape used	Alignment tape (VROCPSV) (stair-case waveform)
Test point	Pin ⑨ of IC201
Adjusting point	R201 (playback level control)
Specification	$2.0 \pm 0.1\text{Vp-p}$

1. Insert the alignment tape (stair-case waveform) and place the unit to the playback mode.
2. Hook up the oscilloscope to pin ⑨ of IC201. Adjust R201 (playback level control) so that the on-screen waveform be $2.0 \pm 0.1\text{Vp-p}$ as shown in Figure 2-8.

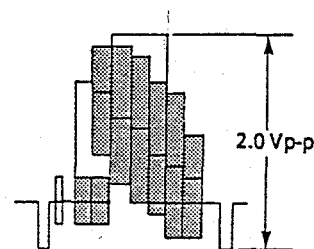


Figure 2-8.

Adjustment of delay level

Measuring instrument	Dual-beam oscilloscope
Mode	Playback
Tape used	Alignment tape (VROCPSV) (stair-case waveform)
Test point	CH-1; TP204 CH-2; TP205
Adjusting point	R202 (delay level control)
Specification	CH-2 level = CH-1 level

1. Insert the alignment tape and play it.
2. Adjust R202 (delay level control) so that the levels of CH-1 and CH-2 are the same as shown in Figure 2-9.

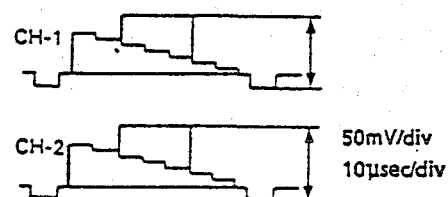


Figure 2-9.

■ ADJUSTMENT OF AUDIO CIRCUIT

Adjustment of playback level

Measuring instrument	VTVM
Mode	Playback
Input signal	Alignment tape (VROCPVS) (1-kHz level control signal)
Test point	Audio output signal
Adjusting point	R610 (playback level control)
Specification	-9 ± 1 dBs

1. Play back the alignment tape (1-kHz level control signal).
2. Hook up the VTVM to the audio output terminal.
3. Adjust R610 (playback level control) so that the output level be -9 ± 1 dBs.

Checking of erase voltage and oscillation frequency

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	—————
Test point	Both ends of the full-erase head
Adjusting point	—————
Specification	Erase voltage; Over 40 Vp-p Oscillation frequency; 70 ± 5 kHz

1. Place the unit to the record mode.
2. Hook up the oscilloscope to both ends of the full-erase head.
3. Make sure the erase voltage is over 40 Vp-p.
4. Be sure that the oscillation frequency is 70 ± 5 kHz.

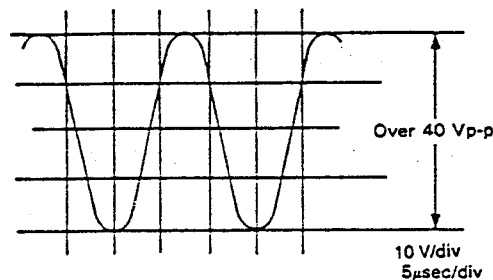


Figure 2-10.

Adjustment of bias current

Measuring instrument	VTVM
Mode	Recording
Input signal	—————
Test point	TP601 (SIG), TP602 (GND)
Adjusting point	R630 (bias current control)
Specification	260 ± 10 μA

1. Place the unit to the record mode.
2. Connect the VTVM to TP601 (SIG) and TP602 (GND).
3. Adjust R630 (bias current control) so that the bias current be 260 ± 10 μA (2.6 ± 0.1 mV).

Checking of recording level

Measuring instrument	VTVM
Mode	Self-recording/playback
Input signal	1 kHz / -8 dBs
Test point	Audio output terminal
Control	—————
Specification	-8 ± 3 dBs

1. Feed 1 kHz, -8 dBs signal to the audio input terminal. Make self-recording and playback of the signal.
2. Make sure the output at the audio output terminal is -8 ± 3 dBs.
3. If out of spec, readjust the playback level and the bias current.

■ ADJUSTMENT OF THE IF CIRCUIT

Adjustment of the RF AGC

Measuring instrument	Oscilloscope
Mode	Signal generator
Input signal	EE
Test point	Colour bar signal
Adjusting point	Video, GMD (Figure 2-12.)
	VR001 (AGC control)

1. Receive the colour bar signal (input field strength: 80 dB μ).
2. Observe the video output terminal waveform on the oscilloscope. Adjust VR001 (AGC control) in the IF pack until the noise disappears from the oscilloscope screen and the waveform nearly comes into sync.

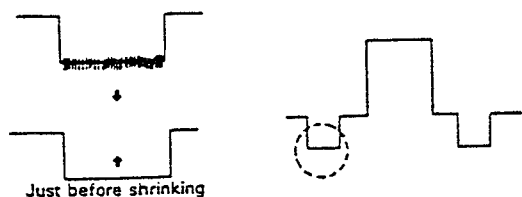


Figure 2-11.

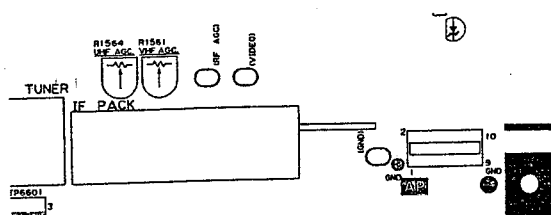


Figure 2-12.

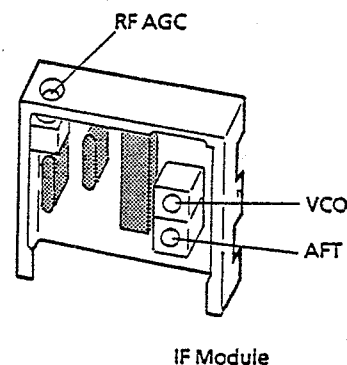
Adjustment of the AFT

Measuring instrument	Oscilloscope
Mode	Signal generator
Input signal	EE
Test point	PIF frequency uniwave
	Colour bar signal (70 dB μ)
Adjusting point	Video, GMD (Figure 2-12.)
	T002 (AFT coil)
Specification	_____

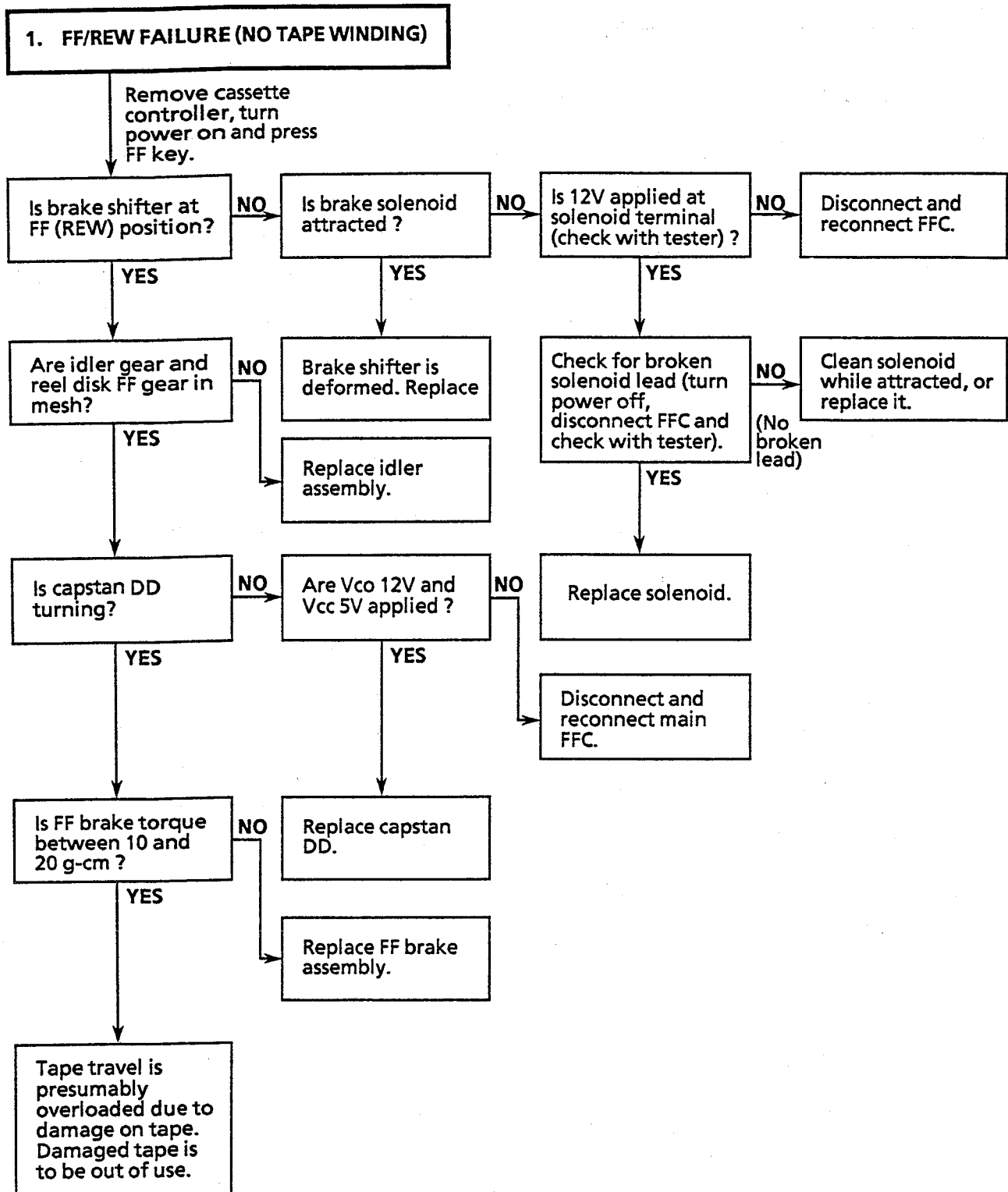
1. Receive the colour bar signal (input field strength: 70 dB μ).
2. Using the signal generator, feed the PIF frequency (*) signal (sine wave) to the tuner IF output terminal.
3. Observe the video output terminal waveform on the oscilloscope.
4. Set the tuning switch to the VHF or UHF position. Keep the tuning button (+) or (–) depressed until the beating on the oscilloscope screen be minimum.
5. Set the tuning switch on the normal position. Adjust the T002 (AFT coil) so that beating on the oscilloscope screen be minimum.

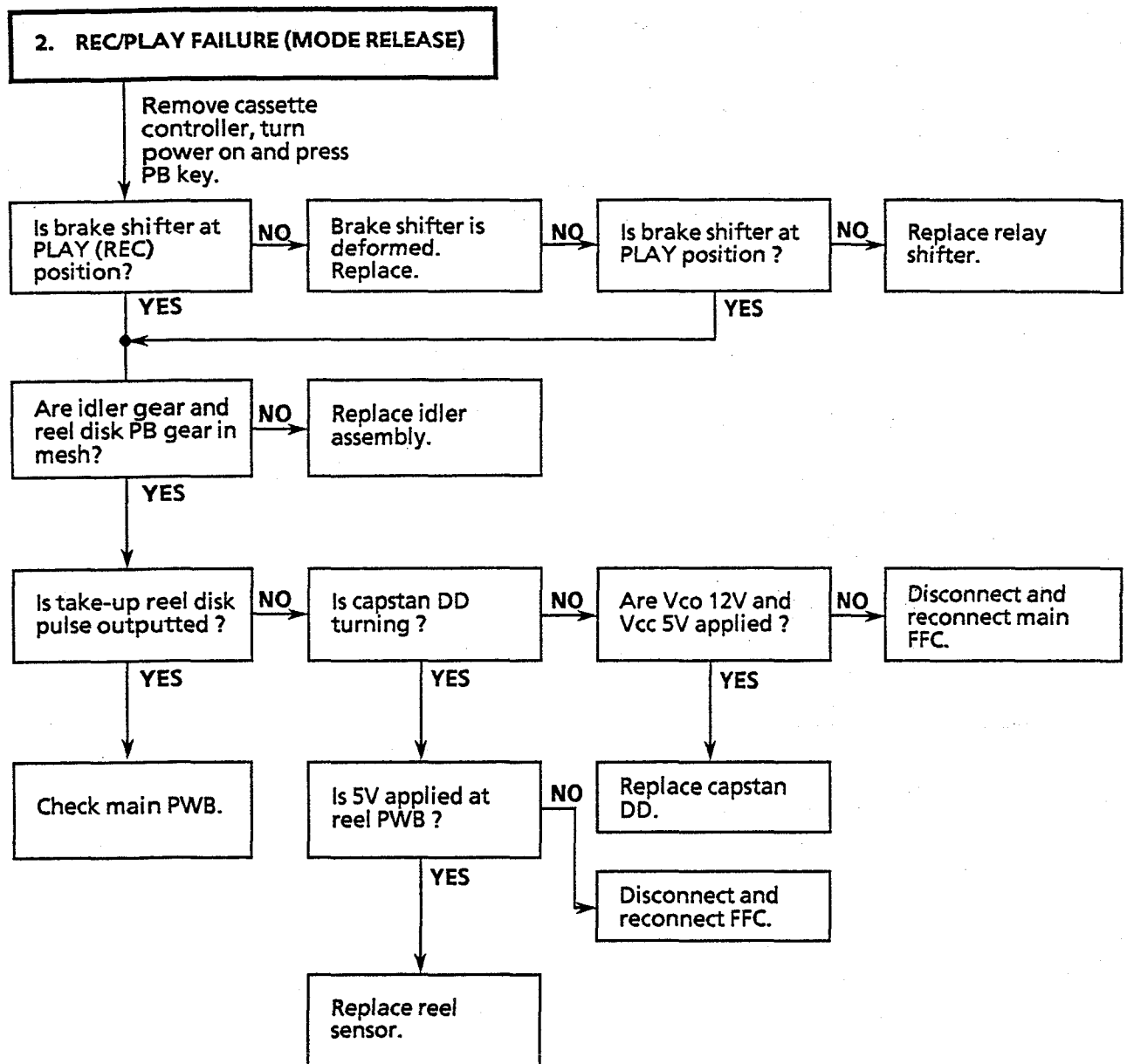
*PIF Frequency

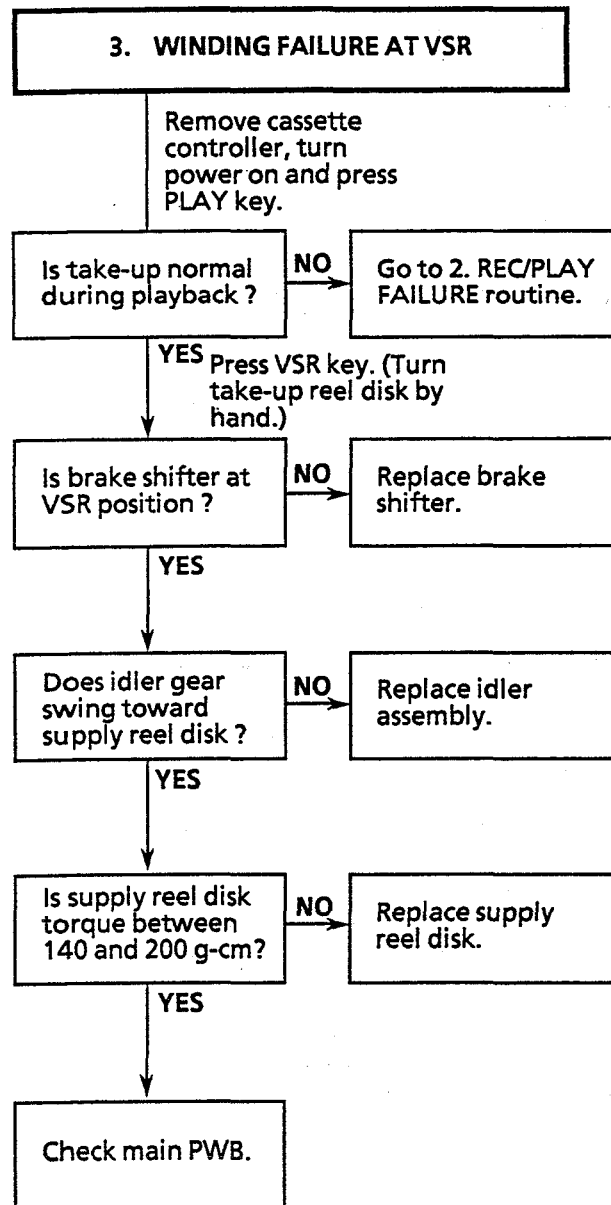
Version	Frequency
67, 95, 69, 60, 53	38.9MHz
75	36.875MHz
73	39.5MHz
93 (Not Used)	38.0MHz

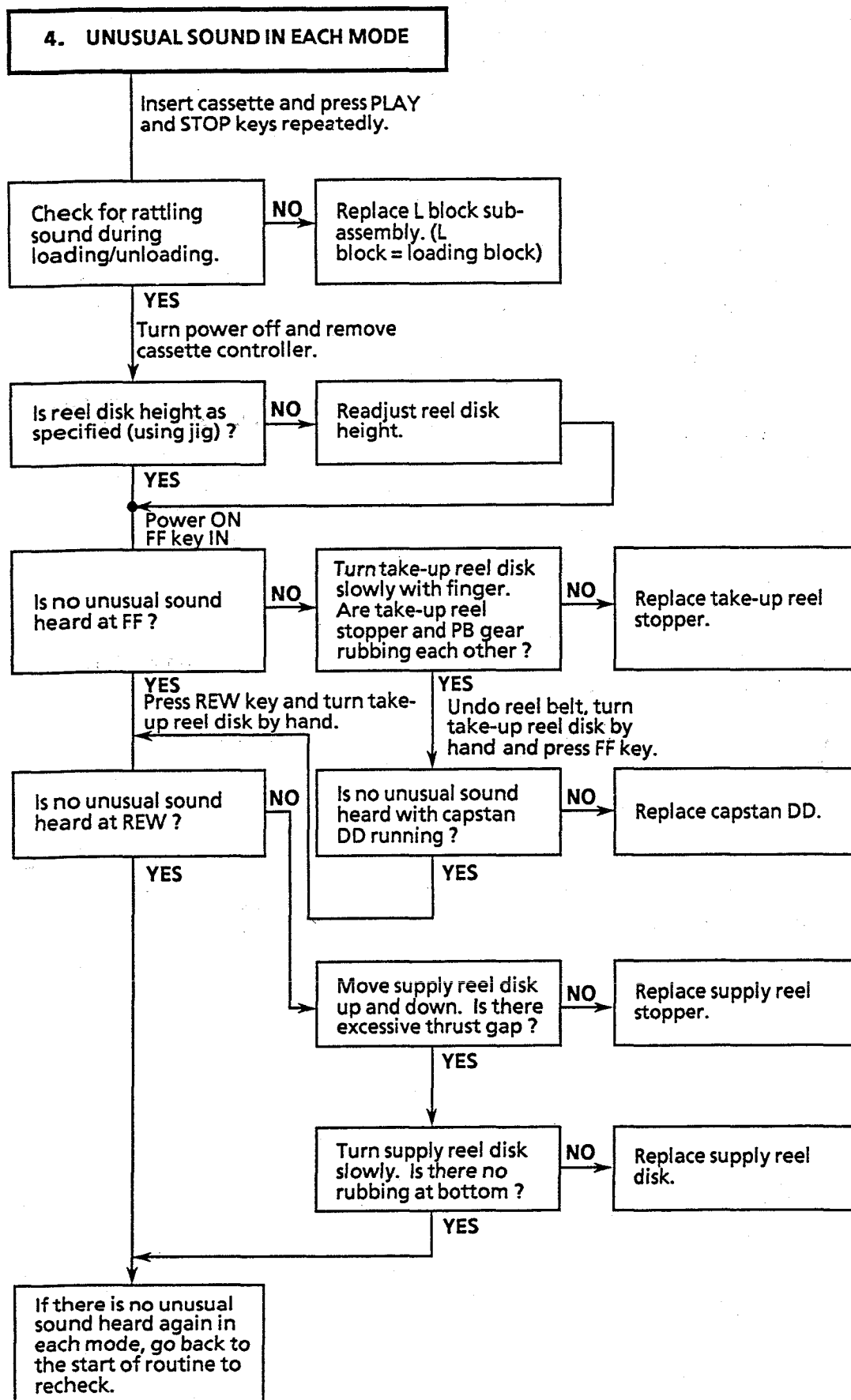


MECHANISM TROUBLESHOOTING



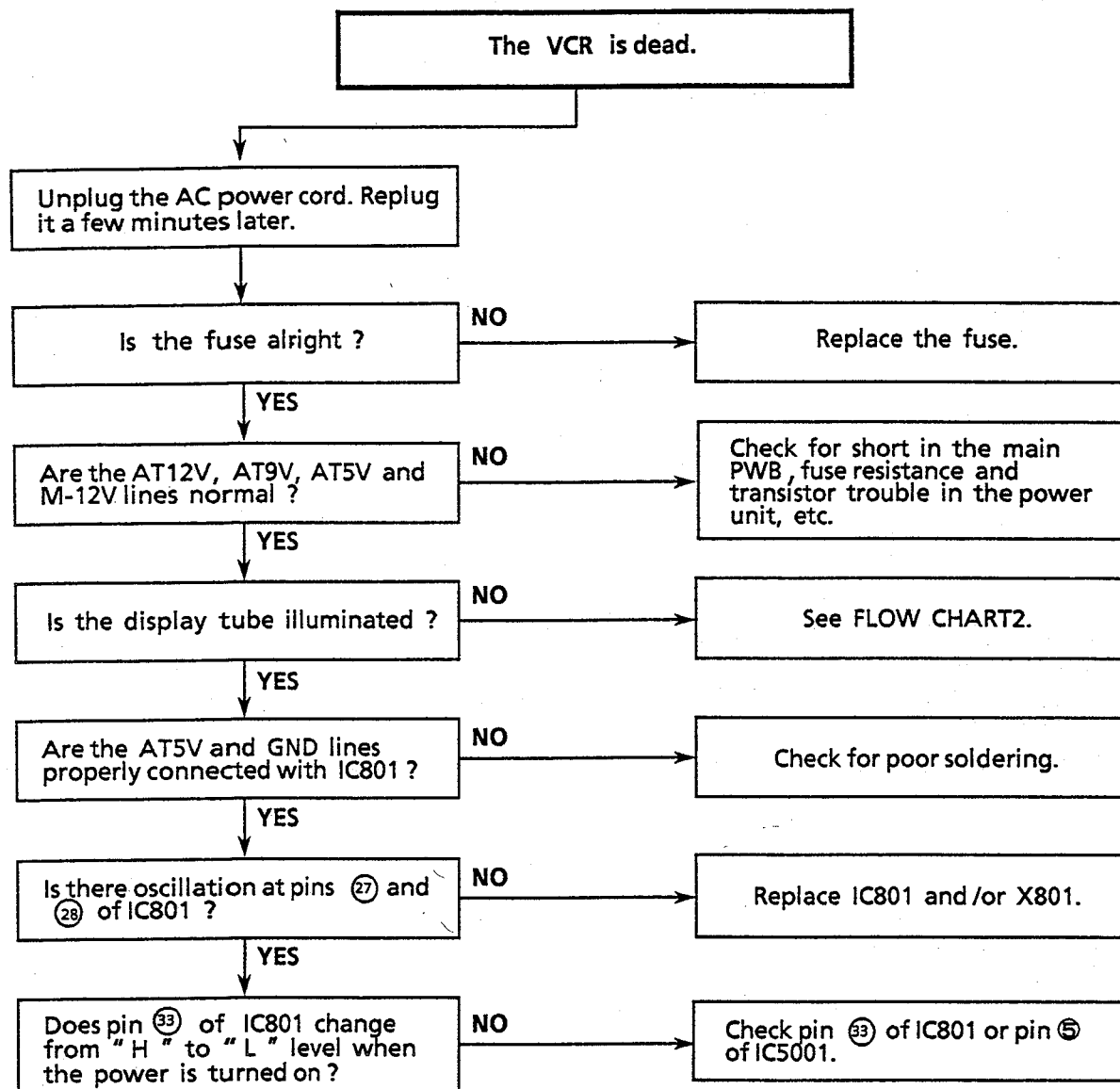






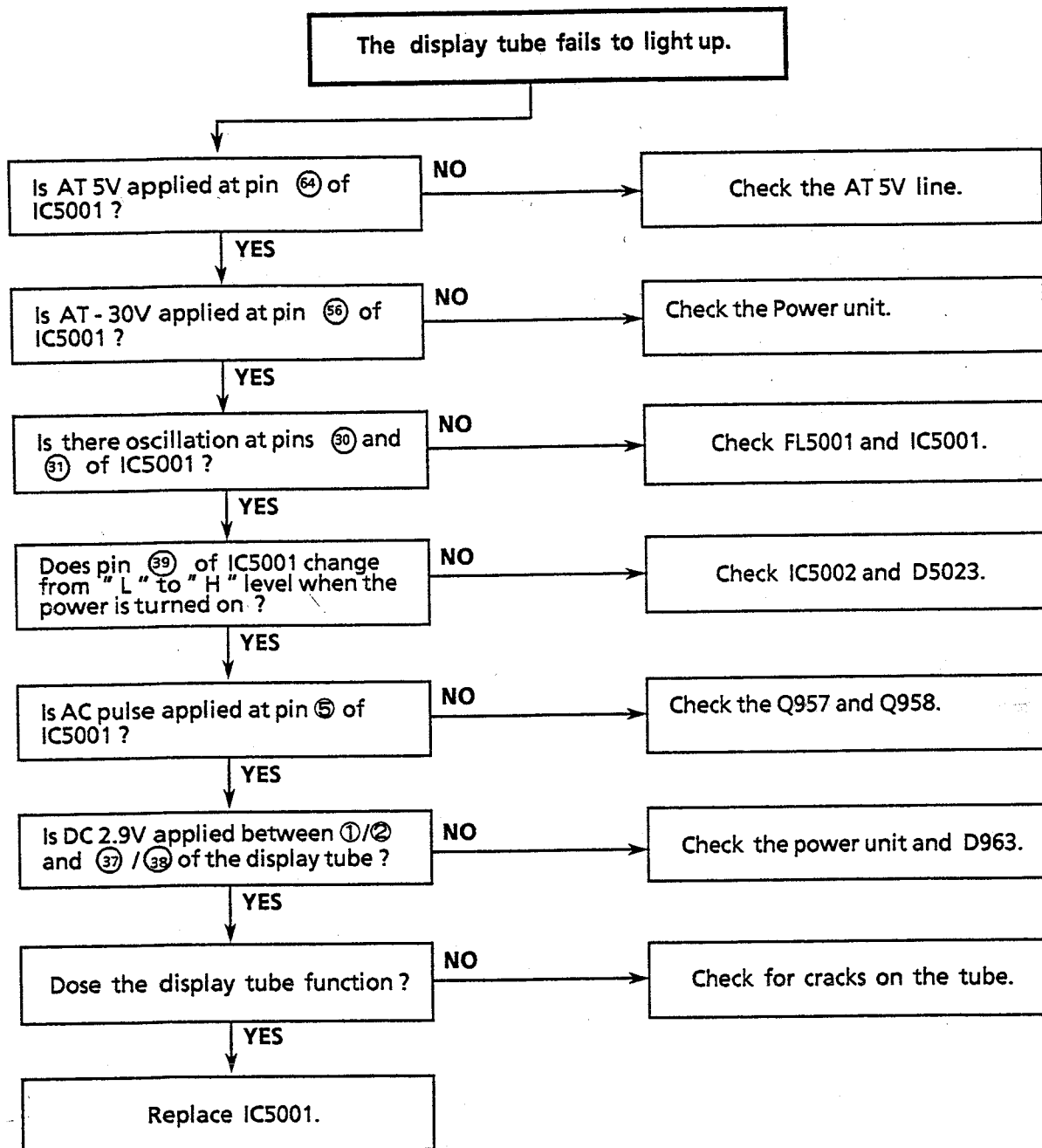
POWER TROUBLESHOOTING

FLOW CHART NO. 1



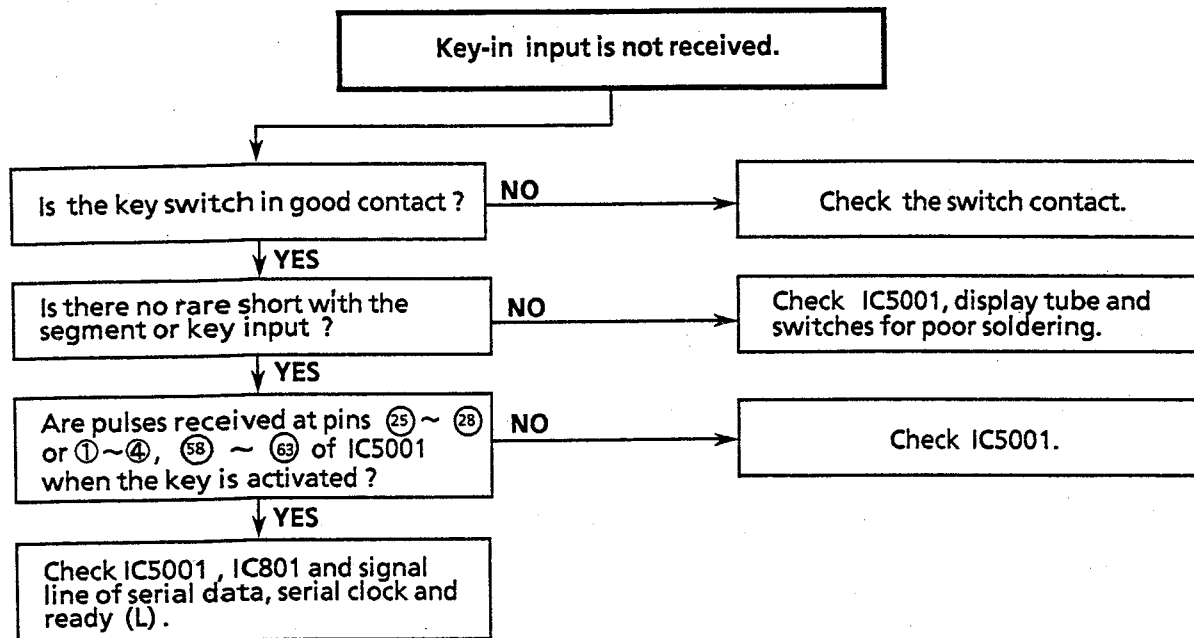
TIMER (1) TROUBLESHOOTING

FLOW CHART NO.2



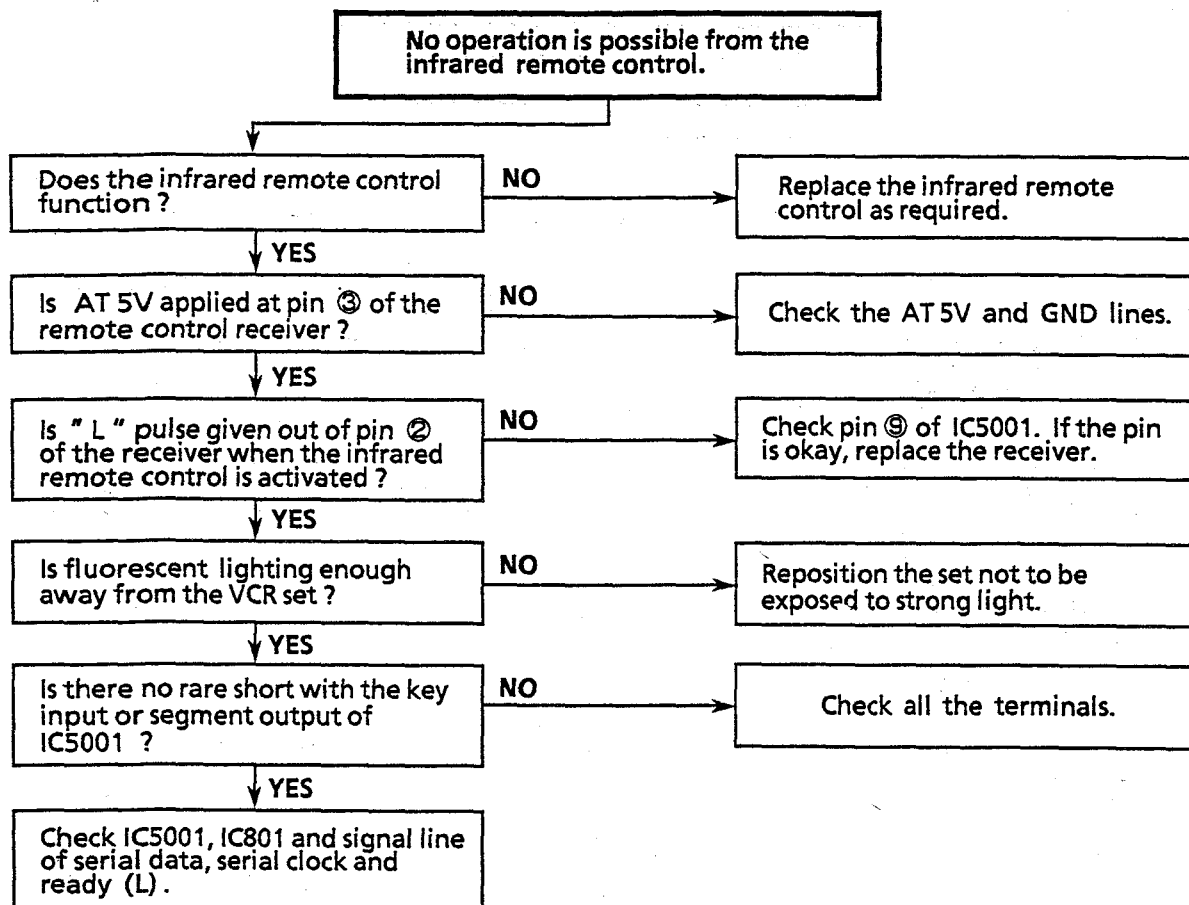
TIMER (2) TROUBLESHOOTING

FLOW CHART NO.3



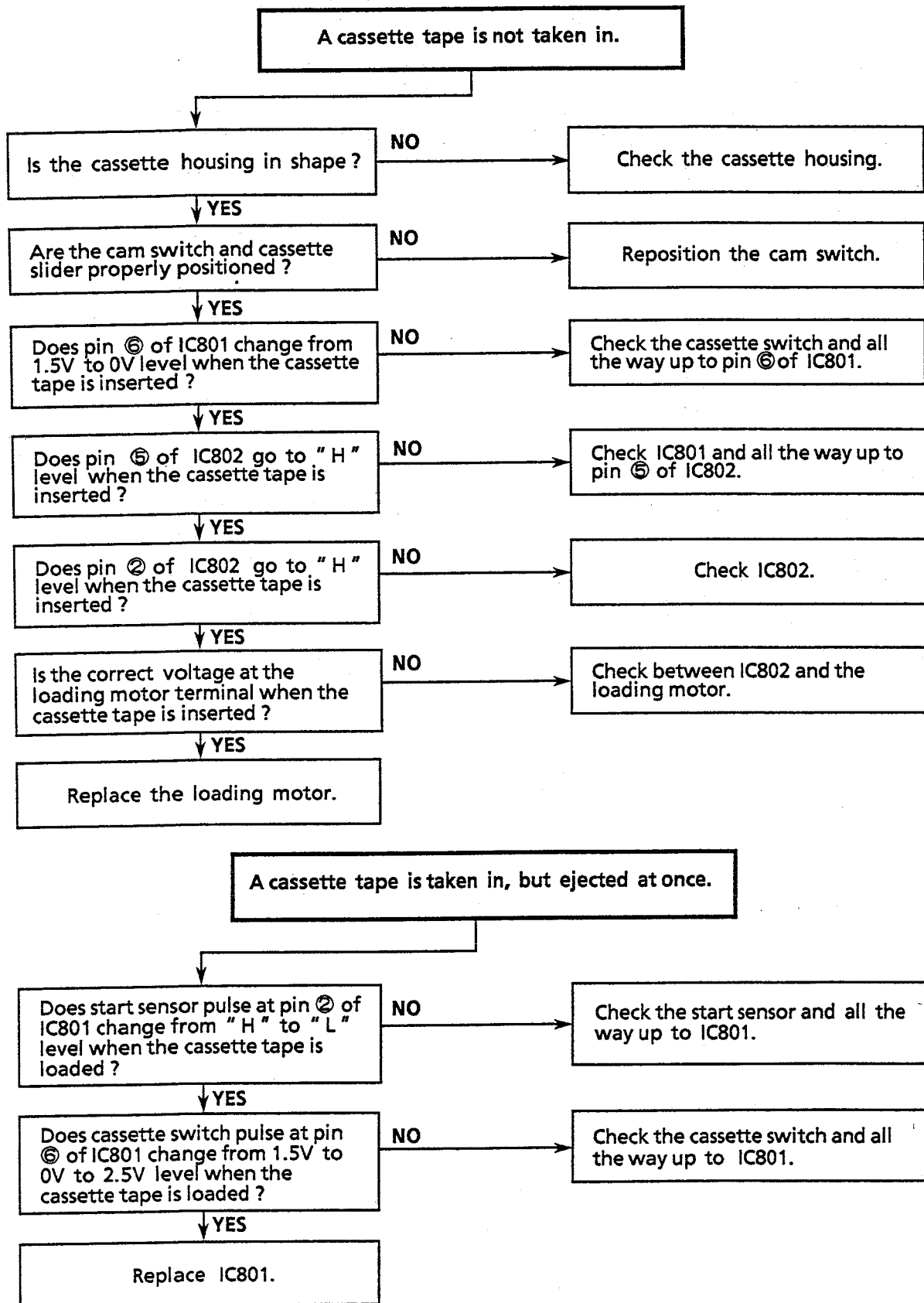
INFRARED R/C TROUBLESHOOTING

FLOW CHART NO. 4



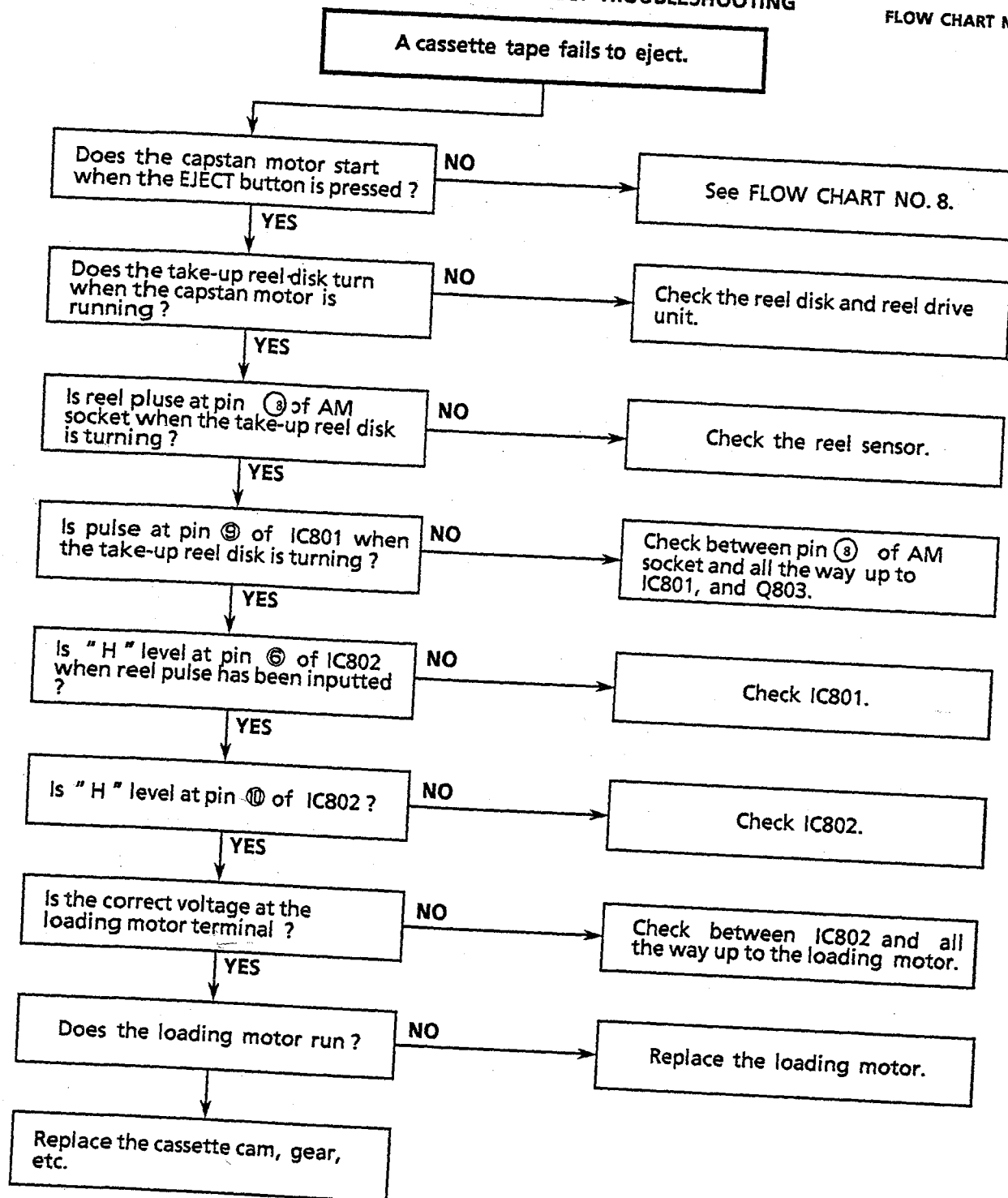
CASSETTE CONTROL TROUBLESHOOTING

FLOW CHART NO. 5



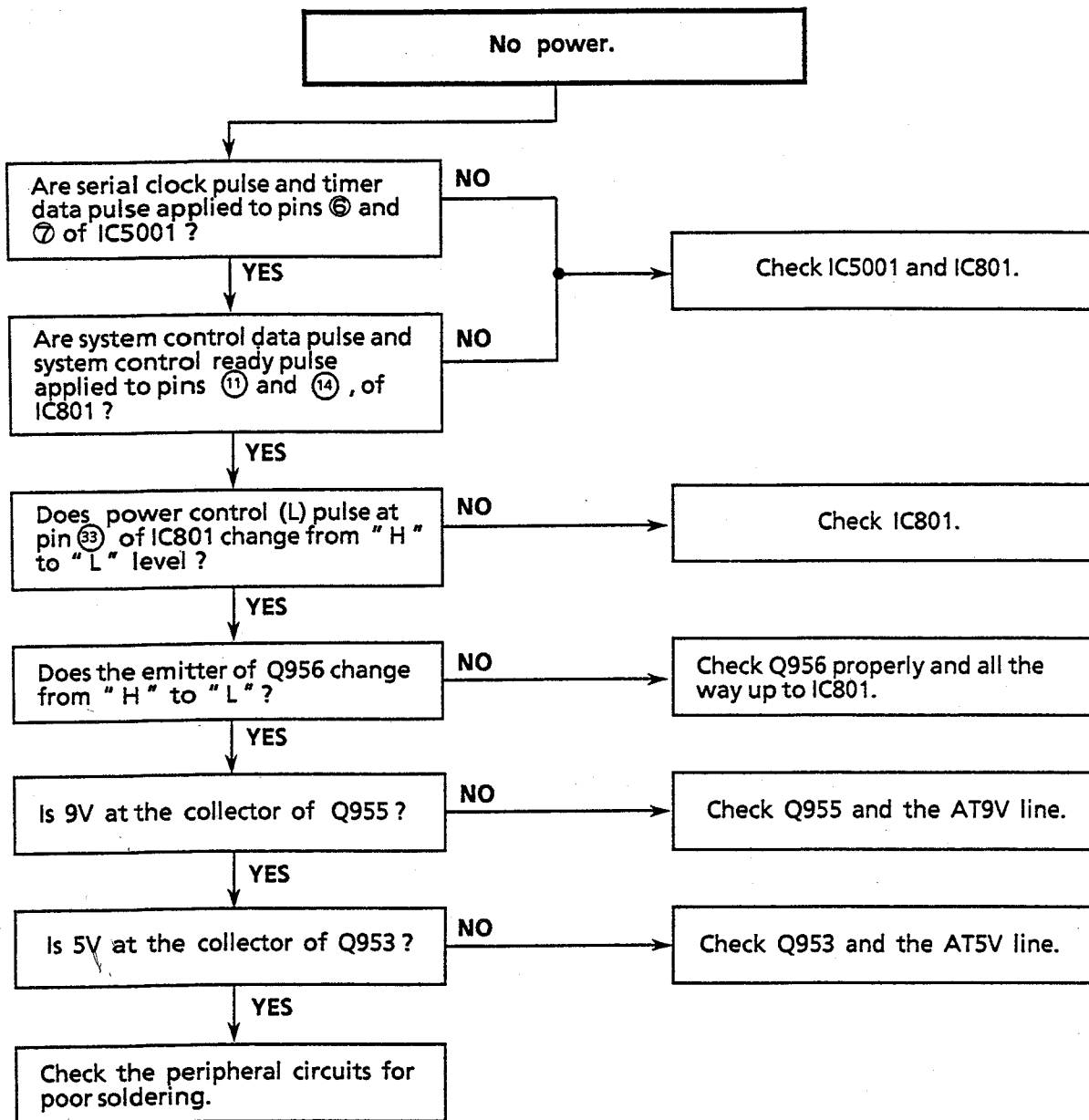
LOADING MOTOR AND EJECT TROUBLESHOOTING

FLOW CHART NO. 6



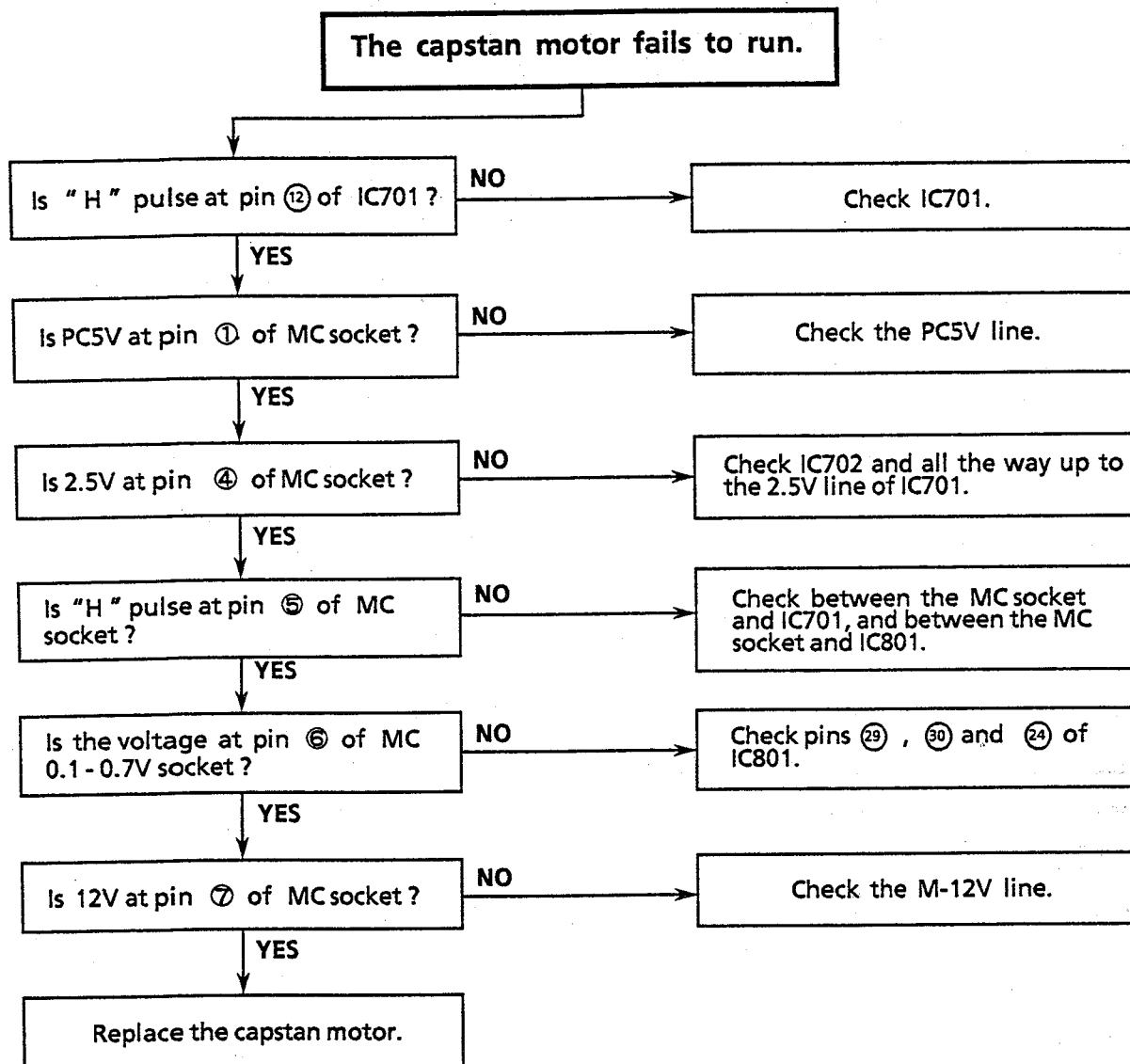
SYSTEM CONTROL TROUBLESHOOTING

FLOW CHART NO. 7



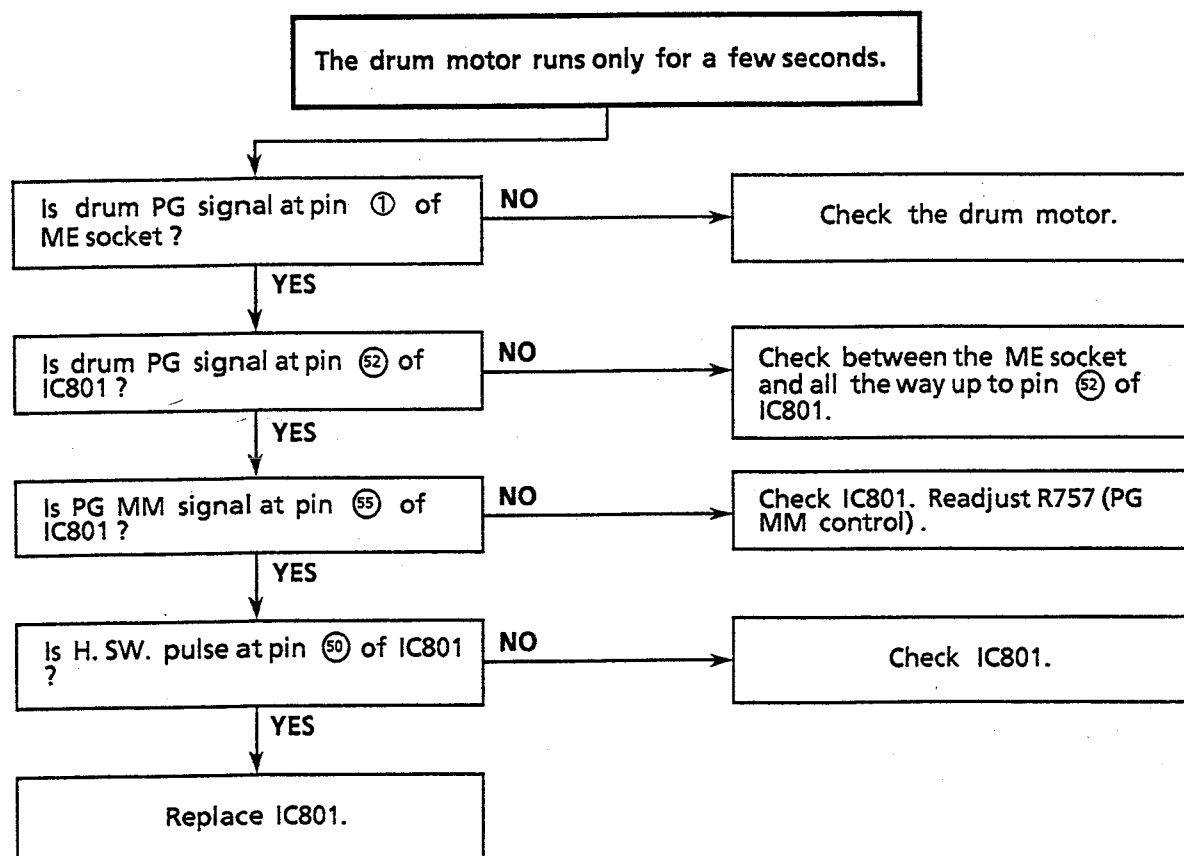
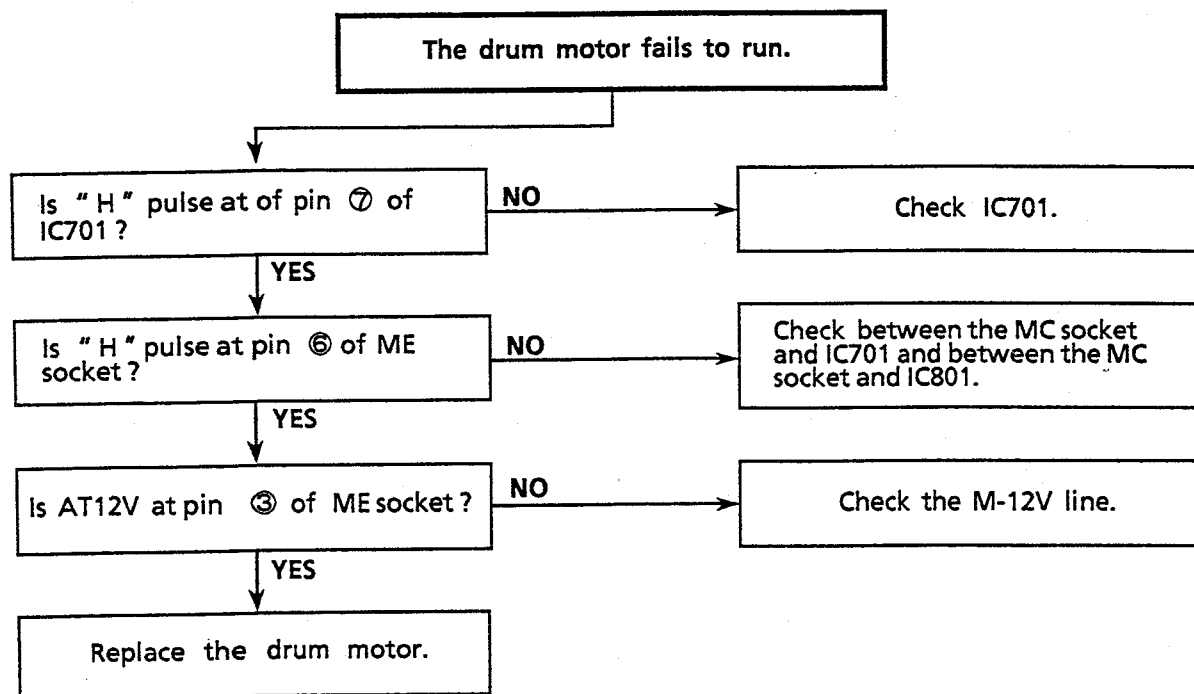
CAPSTAN MOTOR TROUBLESHOOTING

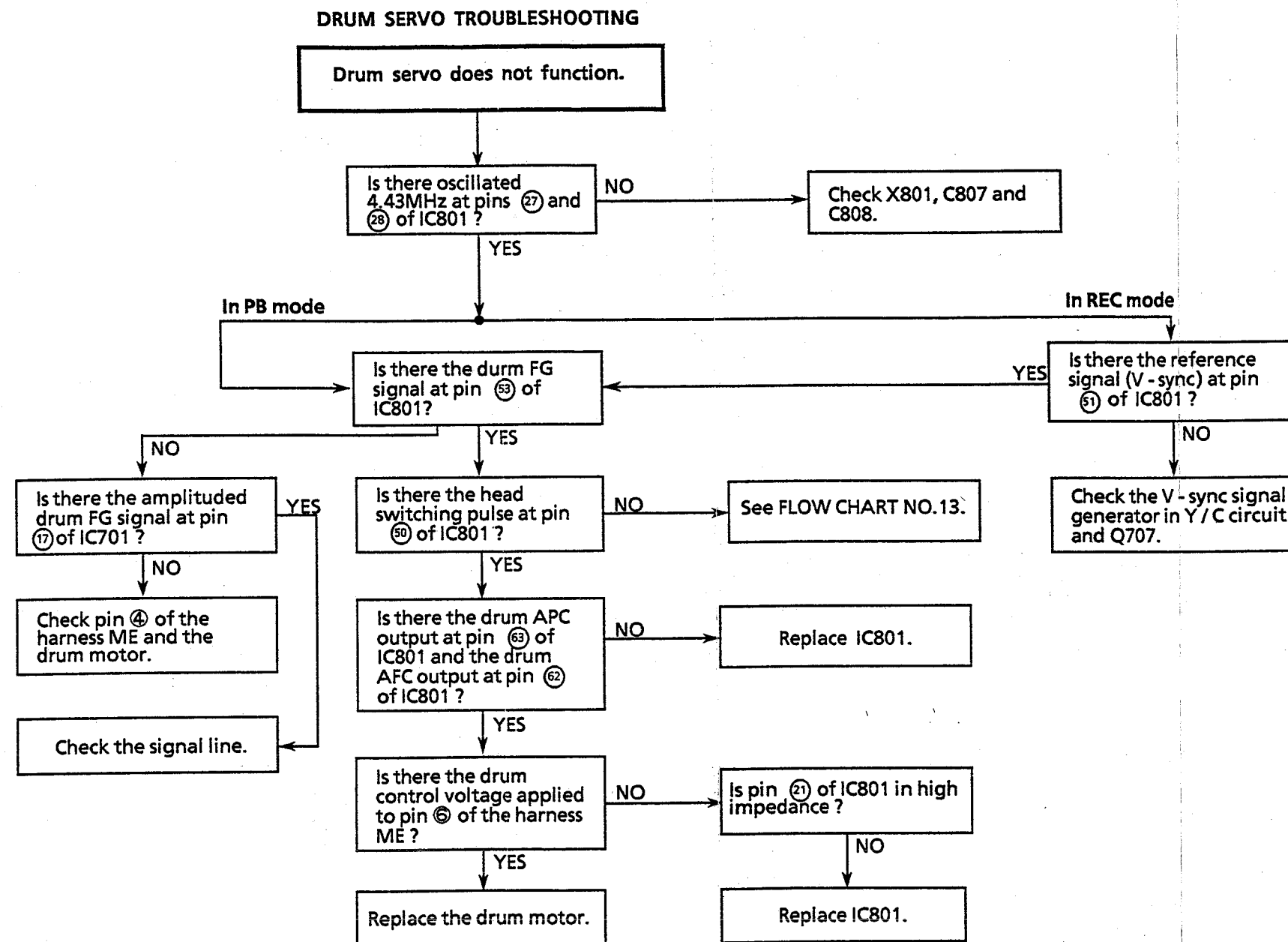
FLOW CHART NO. 8



DRUM MOTOR TROUBLESHOOTING

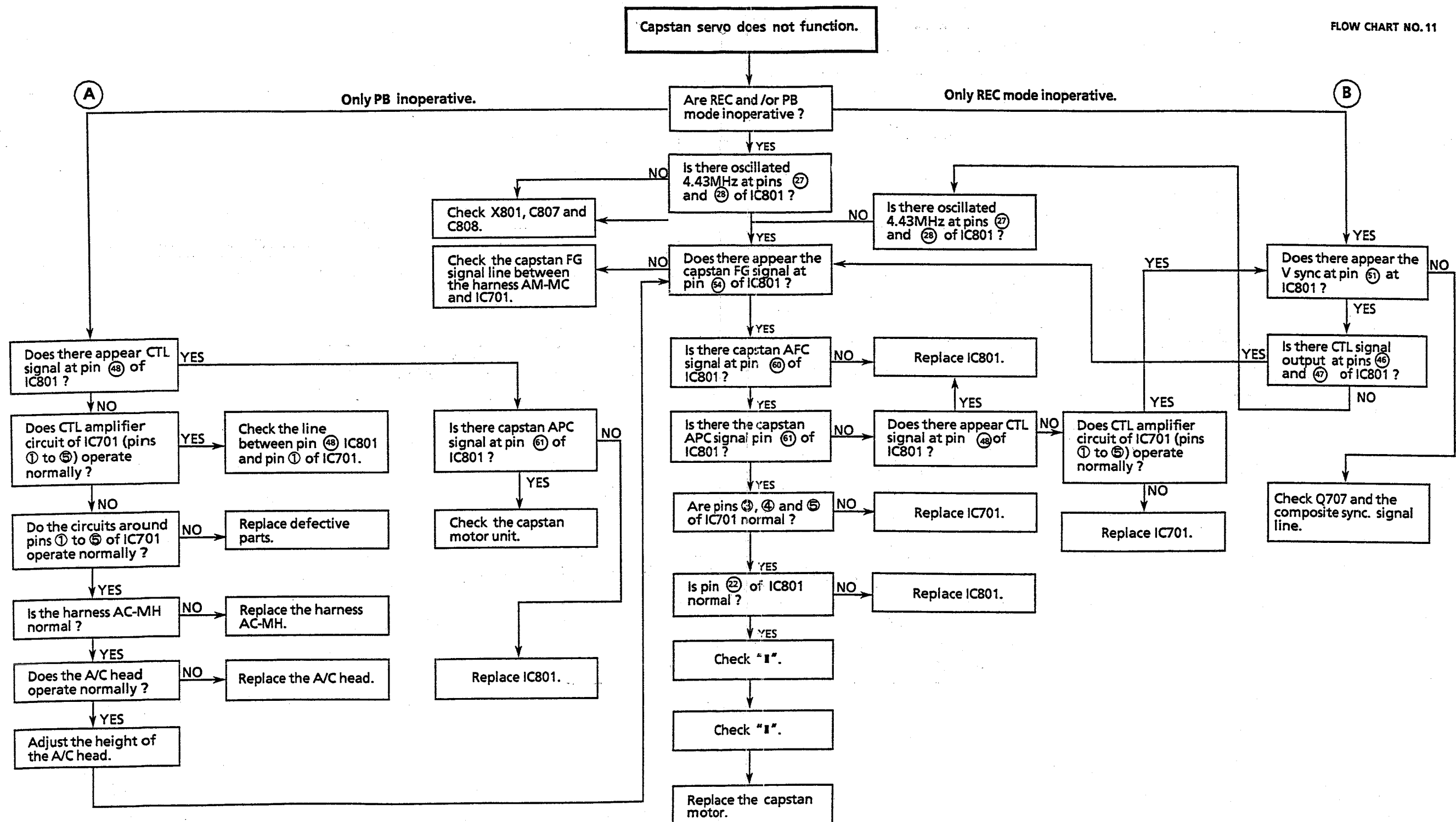
FLOW CHART NO. 9





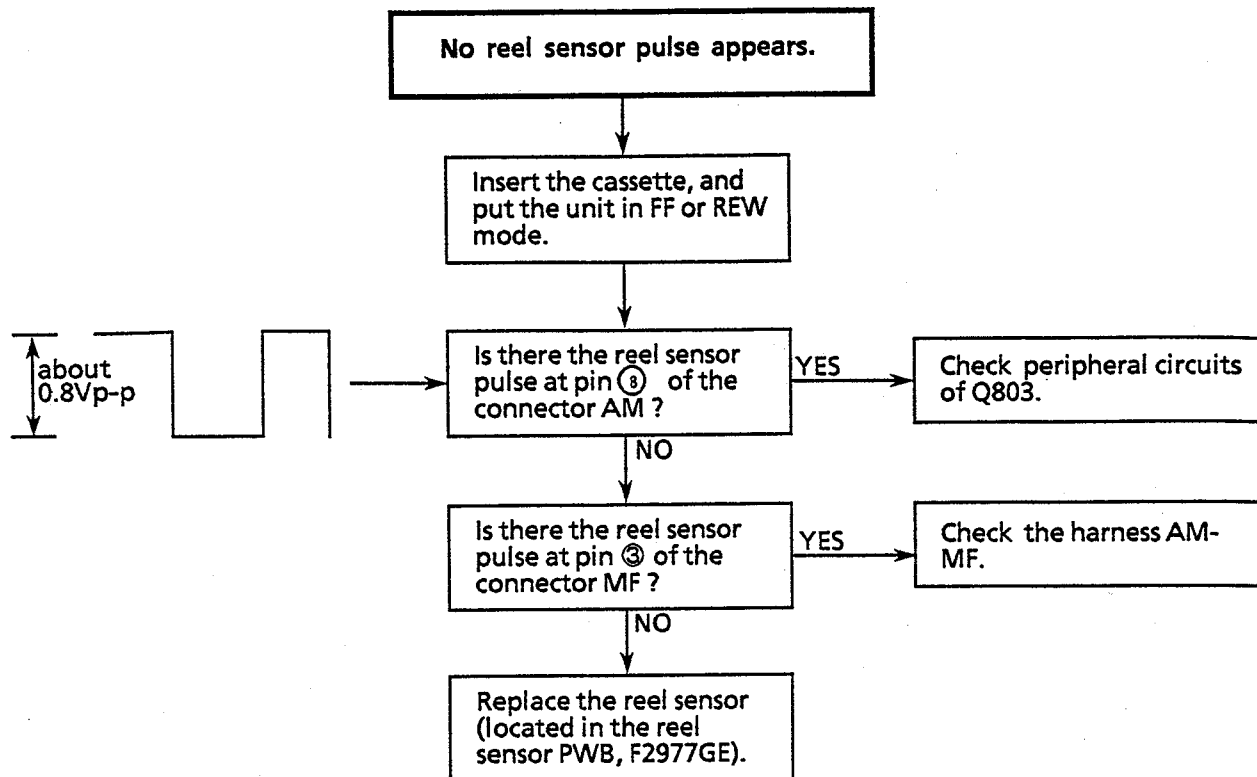
CAPSTAN SERVO TROUBLESHOOTING

FLOW CHART NO. 11



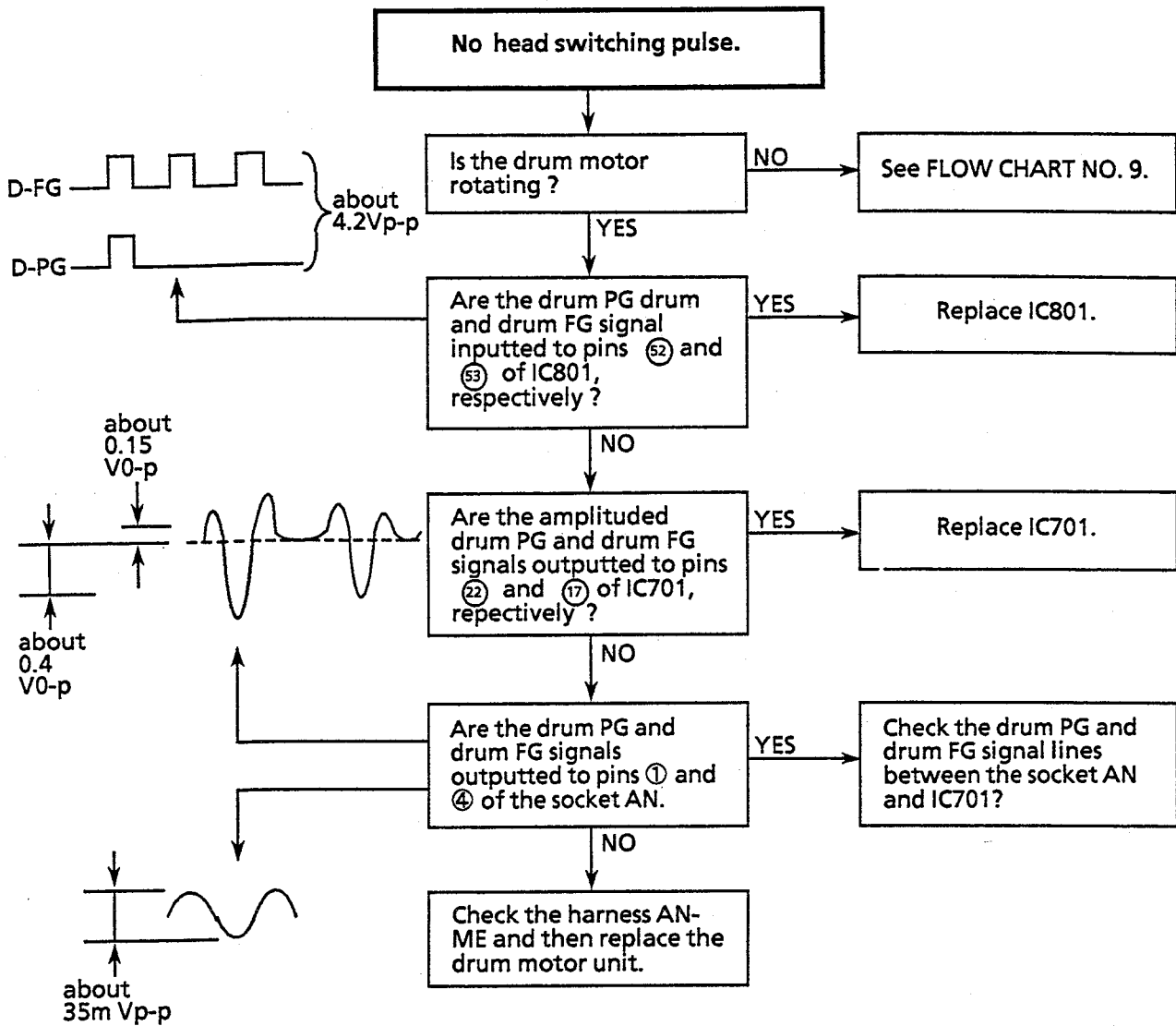
TAKE-UP REEL PULSE GENERATOR TROUBLESHOOTING

FLOW CHART NO. 12



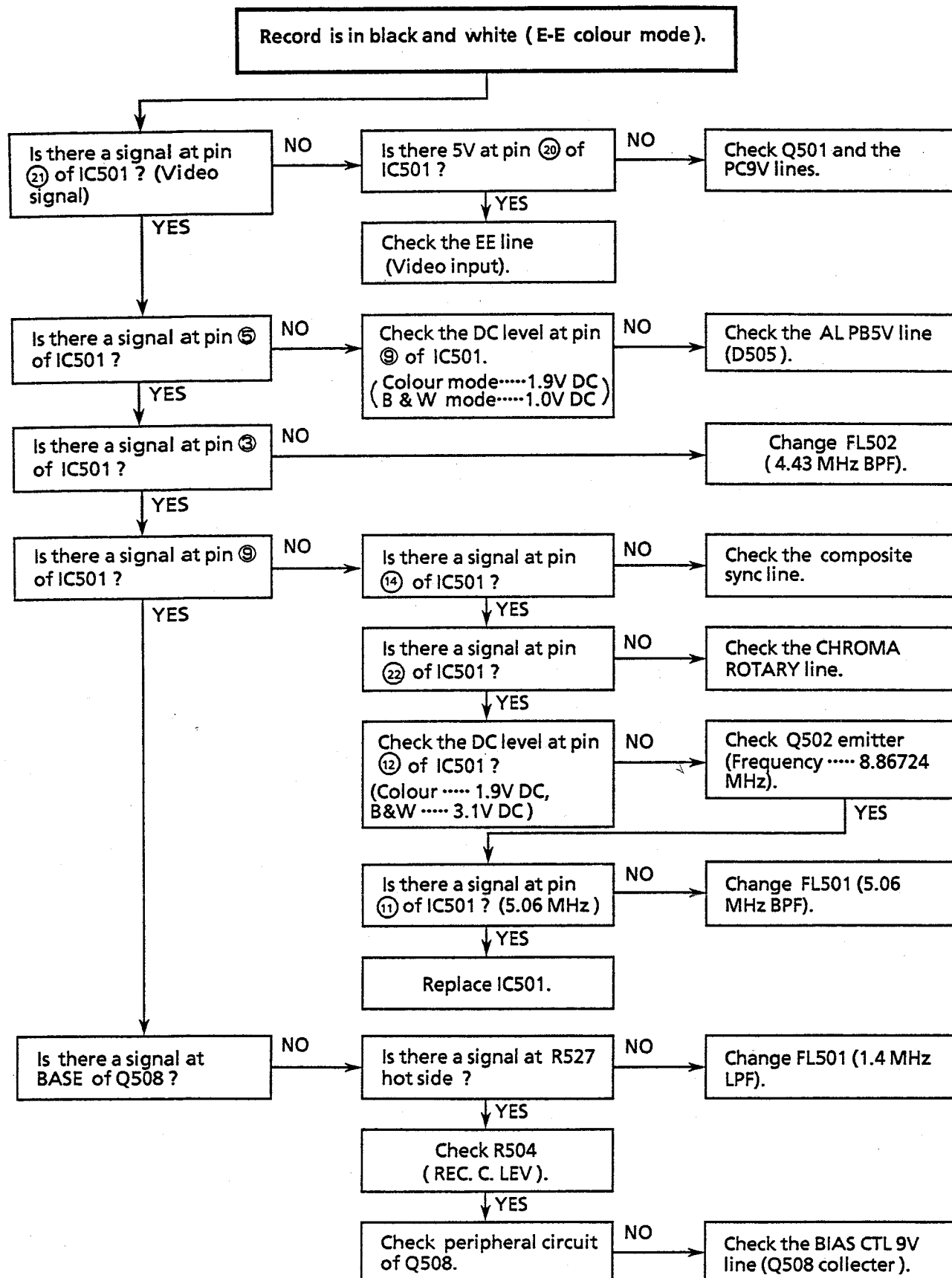
HEAD SWITCHING PULSE TROUBLESHOOTING

FLOW CHART NO. 13



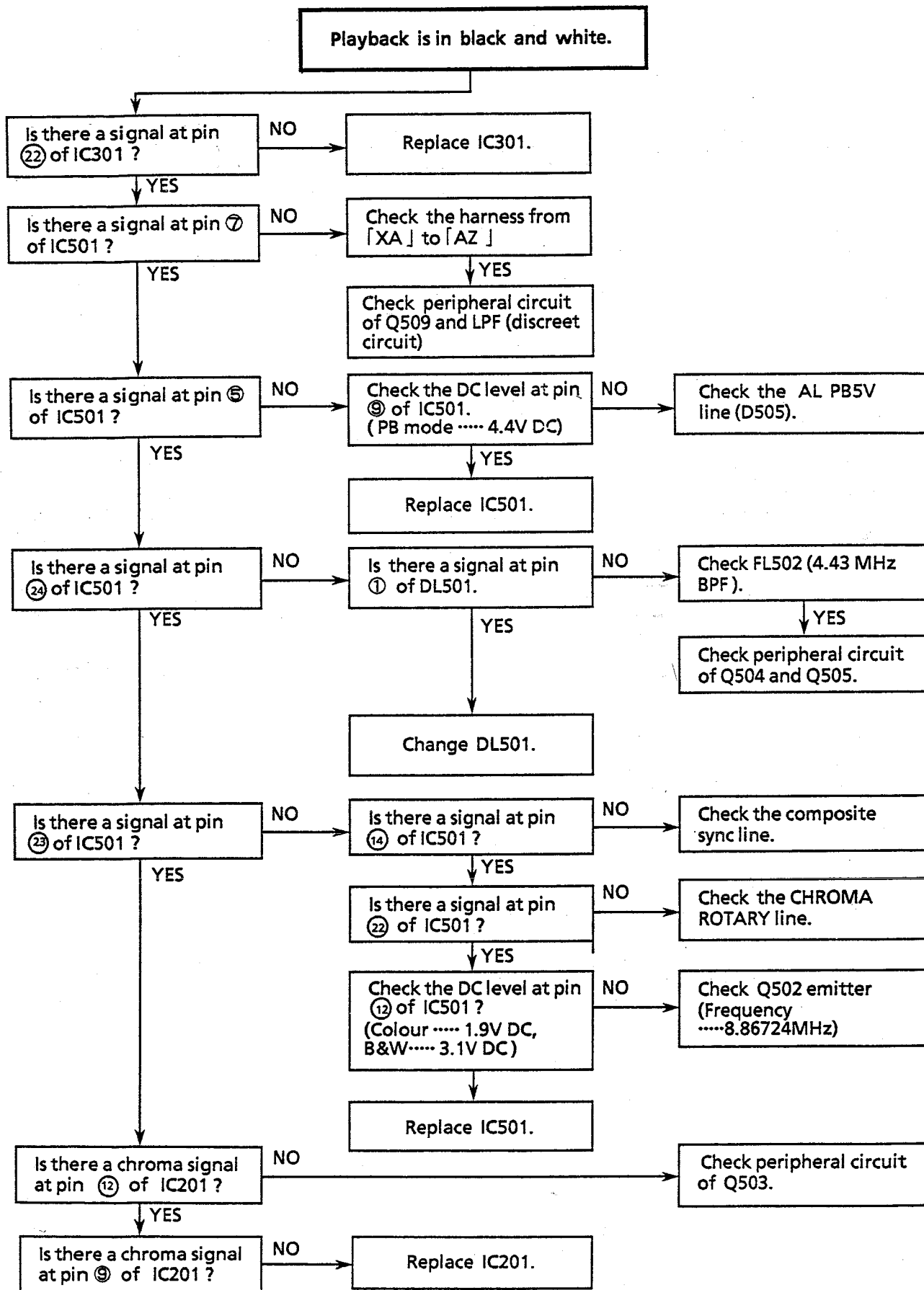
RECORDING MODE (CHROMA) TROUBLESHOOTING

FLOW CHART NO. 15



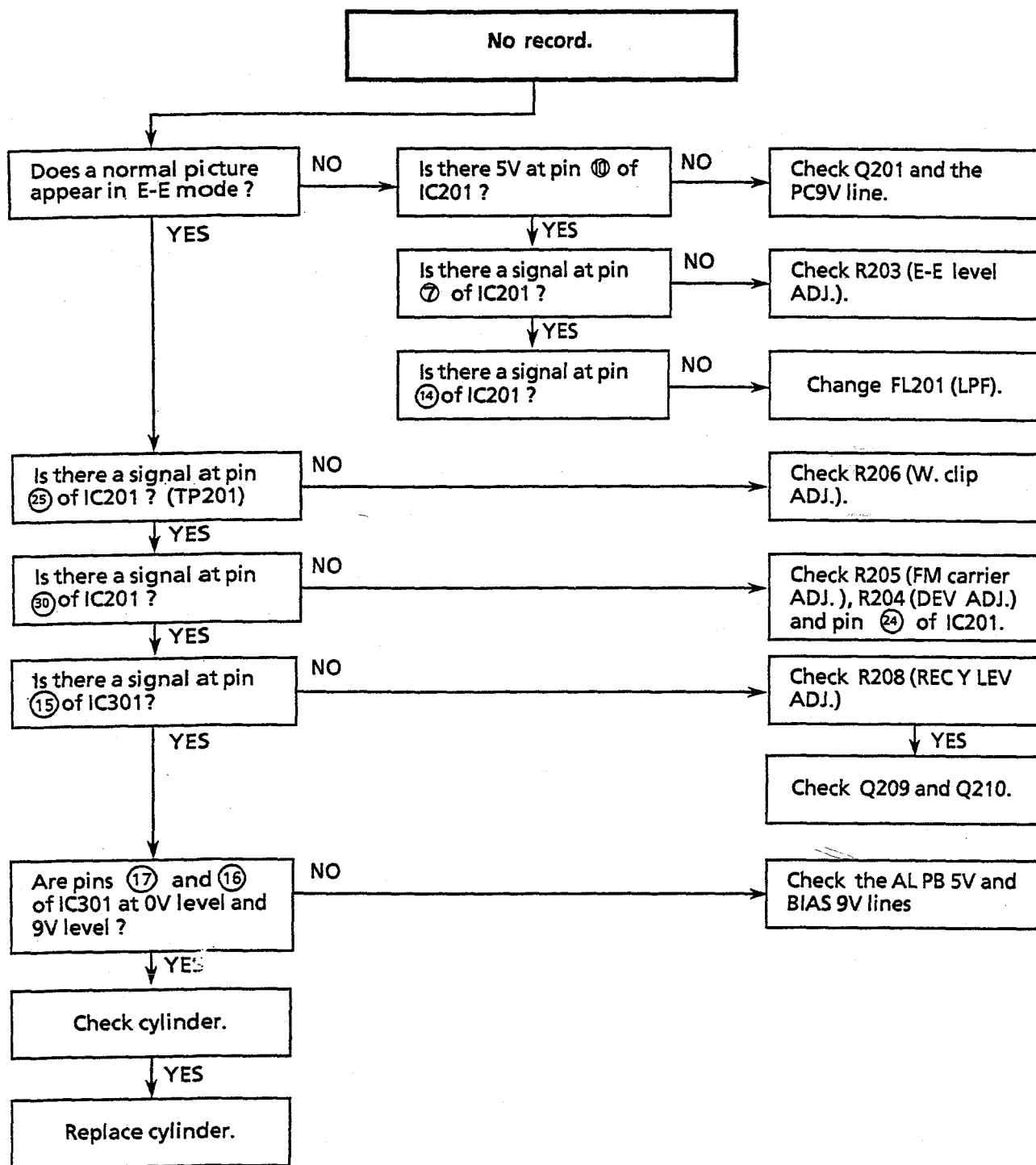
PLAYBACK MODE (CHROMA) TROUBLESHOOTING

FLOW CHART NO. 16



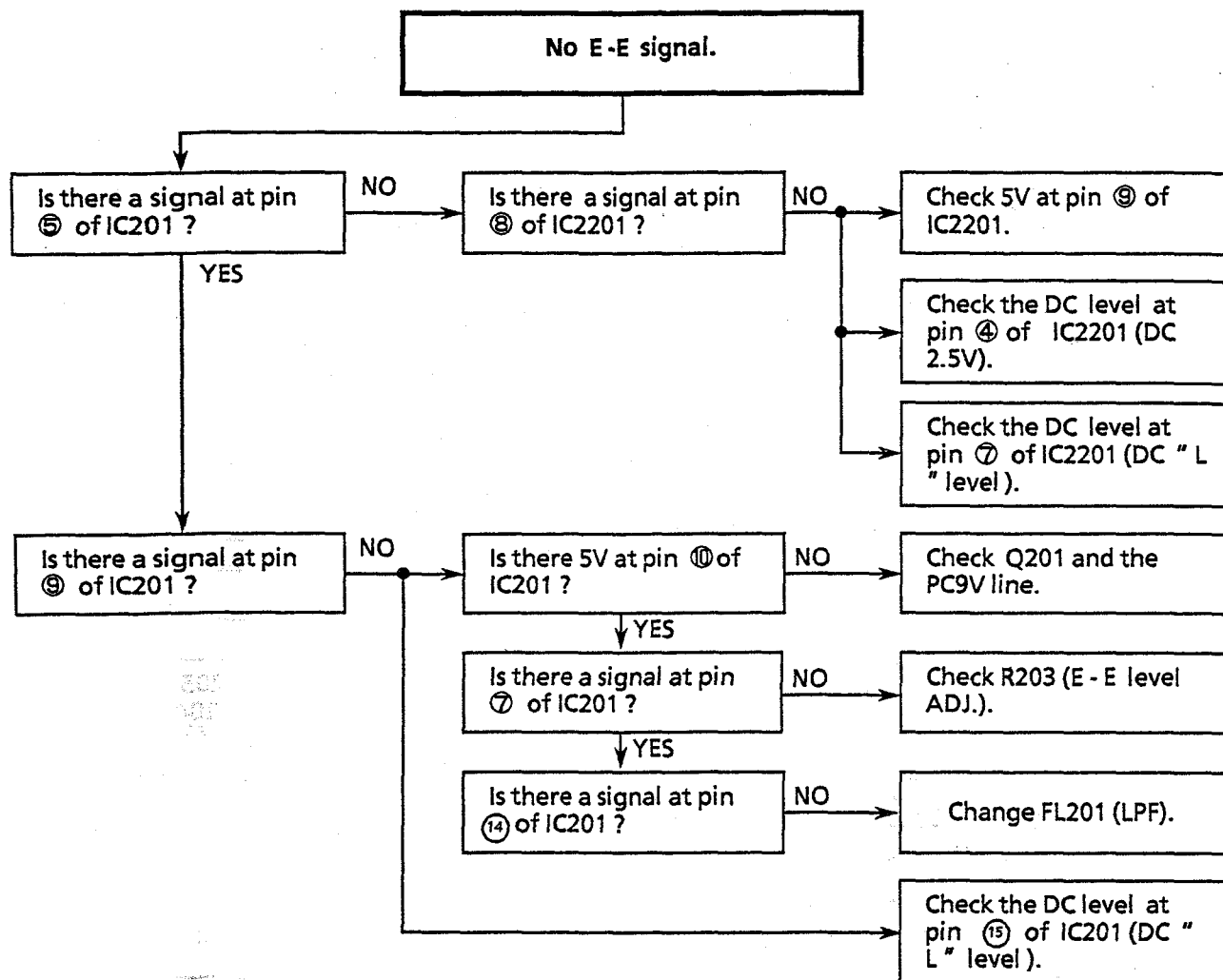
RECORDING MODE (LUMINANCE) TROUBLESHOOTING

FLOW CHART NO. 17



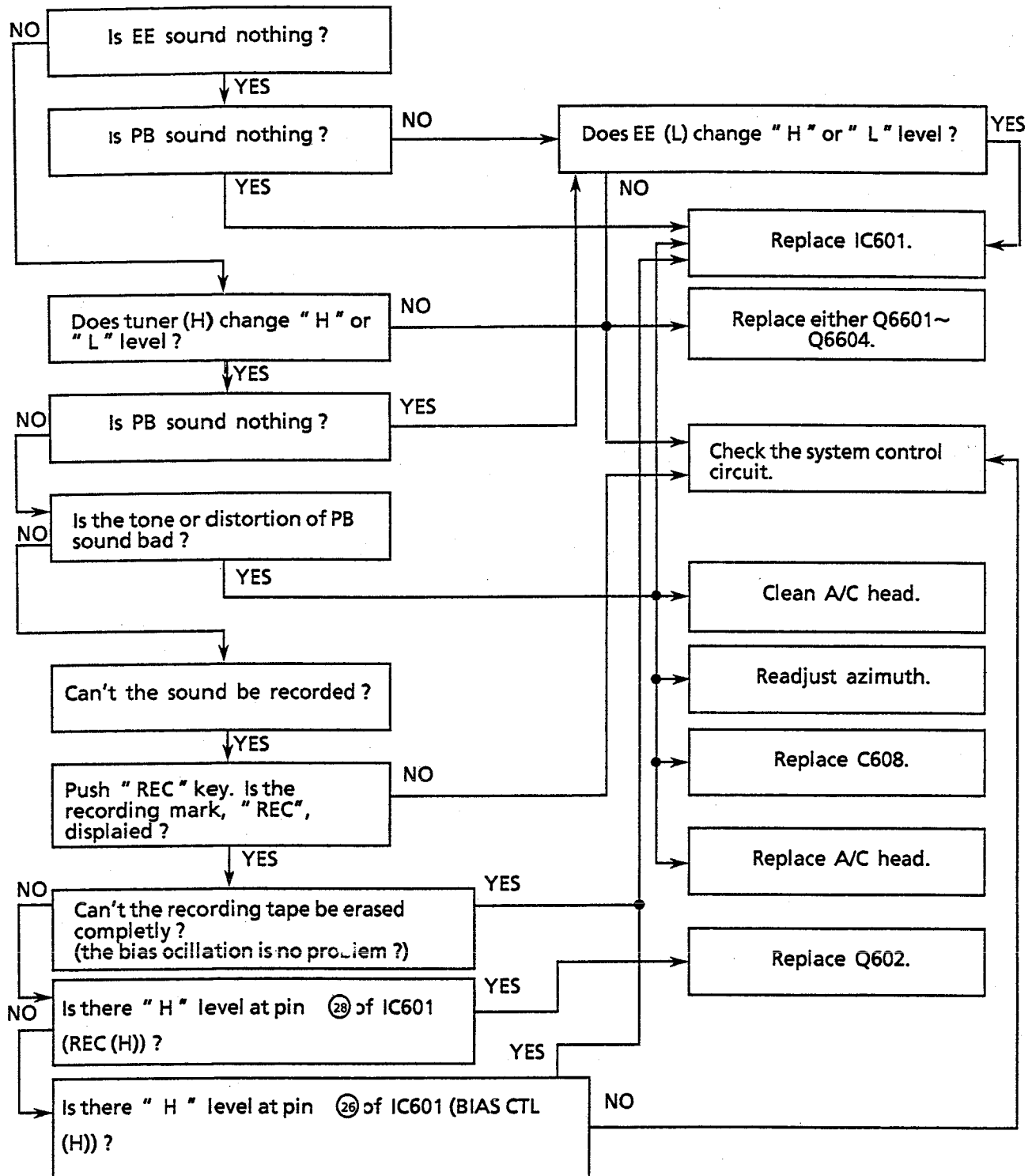
E - E MODE TROUBLESHOOTING

FLOW CHART NO. 18



SOUND TROUBLESHOOTING

FLOW CHART NO. 19



SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:

BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET. PARTS MARKED WITH "Δ" AND PARTS SHADED (IN BLACK) ARE ESPECIALLY IMPORTANT FOR MAINTAINING THE SAFETY AND PROTECTING ABILITY OF THE SET.

BE SURE TO REPLACE THEM WITH PARTS OF SPECIFIED PART NUMBER.

SAFETY NOTES:

1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.
2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

NOTES:

1. The unit of resistance "ohm" is omitted ($k = 1000 \text{ ohm}$, $M = 1 \text{ Meg ohm}$).
2. All resistors are 1/8 watt, unless otherwise noted.
3. The unit of capacitance "F" is omitted ($\mu = \mu F$, $p = \mu\mu F$).
4. The values in parentheses are the ones in the PB mode; the values without parentheses are the ones in the REC mode.

VOLTAGE MEASUREMENT CONDITIONS:

1. DC voltages are measured between points indicated and chassis ground by VTVM, with AC220V/50Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.
2. Voltages are measured with $10000\mu V$ B & W or colour signal.

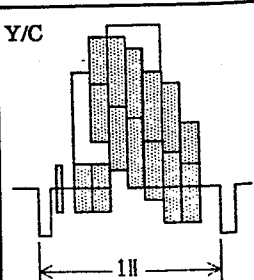
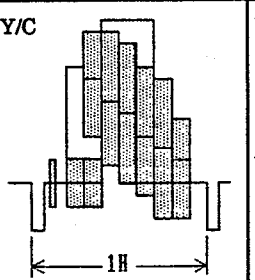
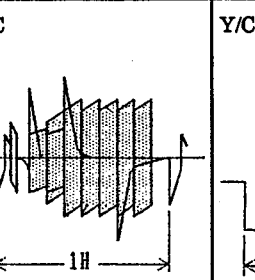
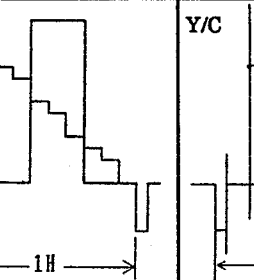
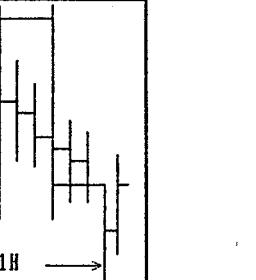
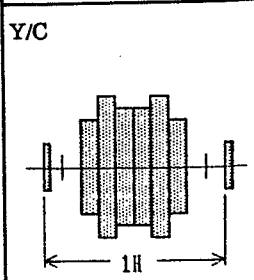
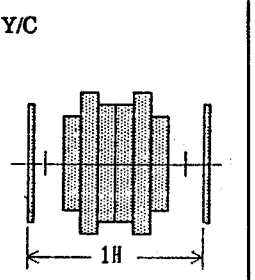
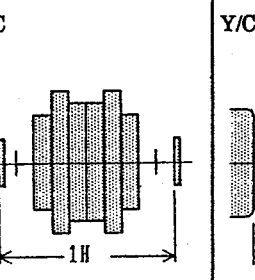
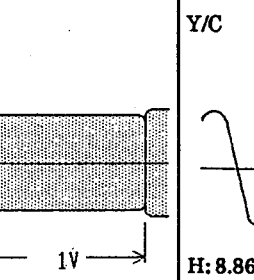
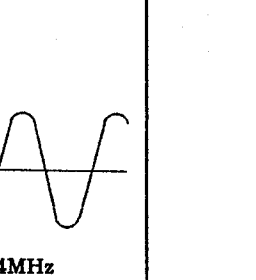
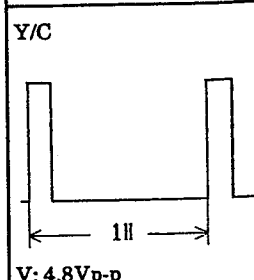
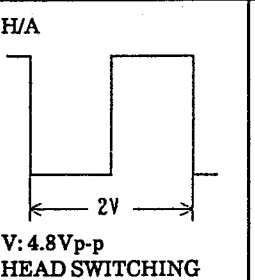
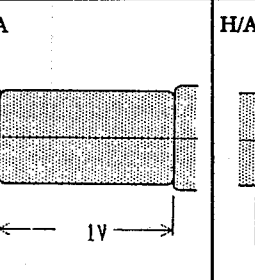
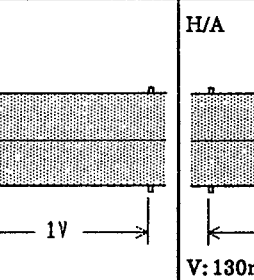
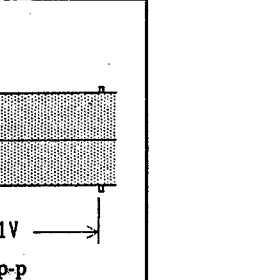
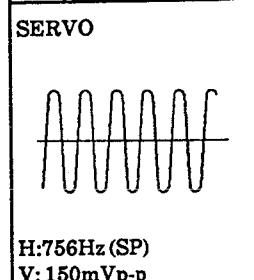
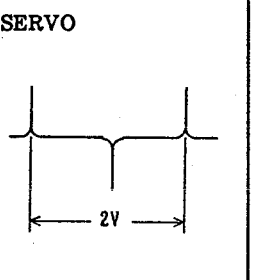
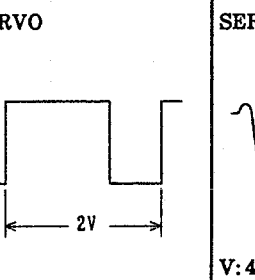
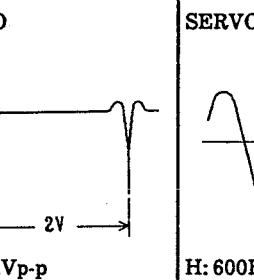
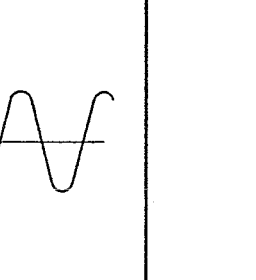
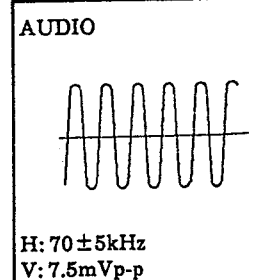
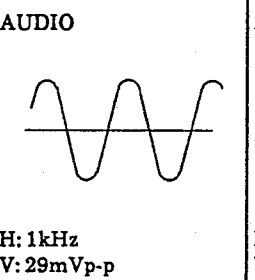
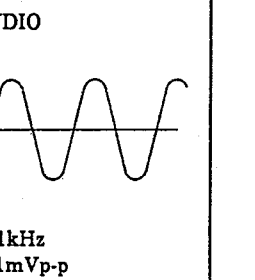
WAVEFORM MEASUREMENT CONDITIONS:

$10000\mu V$ 87.5 percent modulated colour bar signal is fed into tuner.

CAUTION:

This circuit diagram is original one. Therefore there may be a slight difference from yours.

WAVEFORMS

 V: 1.0Vp-p IC201 PIN5 REC/EE	 V: 2.0Vp-p IC201 PIN9 REC/PB/EE	 V: 1.0Vp-p IC501 PIN21 REC/EE	 V: 1.0Vp-p IC201 PIN21 PB	 V: 300mVp-p TP201 REC/EE
 V: 130mVp-p IC501 PIN3 REC/EE	 V: 170mVp-p Q508 EMITTER REC	 V: 600mVp-p IC501 PIN23 PB	 V: 450mVp-p IC201 PIN28 PB	 H: 8.86724MHz V: 600mVp-p Q502 EMITTER
 V: 4.8Vp-p IC201 PIN1 COMPOSITE SYNC.	 V: 4.8Vp-p HEAD SWITCHING PULSE IC301 PIN2	 V: 200mVp-p IC301 PIN22 PB	 V: 4.5Vp-p IC301 PIN8 REC	 V: 130mVp-p AZ CONNECTOR PIN1 REC
 H: 756Hz (SP) V: 150mVp-p AM CONNECTOR PIN13 PB	 V: 2.6Vp-p (SP MODE) IC701 PIN3 PB	 V: 4.2Vp-p IC701 PIN1 PB	 V: 40mVp-p AN CONNECTOR PIN1 PB	 H: 600Hz V: 2.7Vp-p IC701 PIN17 PB
 H: 70 ± 5kHz V: 7.5mVp-p TP601 (+), TP602 (-) REC	 H: 1kHz V: 29mVp-p IC601 PIN11 REC/PB	 H: 1kHz V: 1mVp-p MH CONNECTOR PIN1 PB		

SERVO, SYSTEM CONTROL, Y/C, AUDIO CIRCUIT DIAGRAM MAIN 1

– Drum Error Voltage

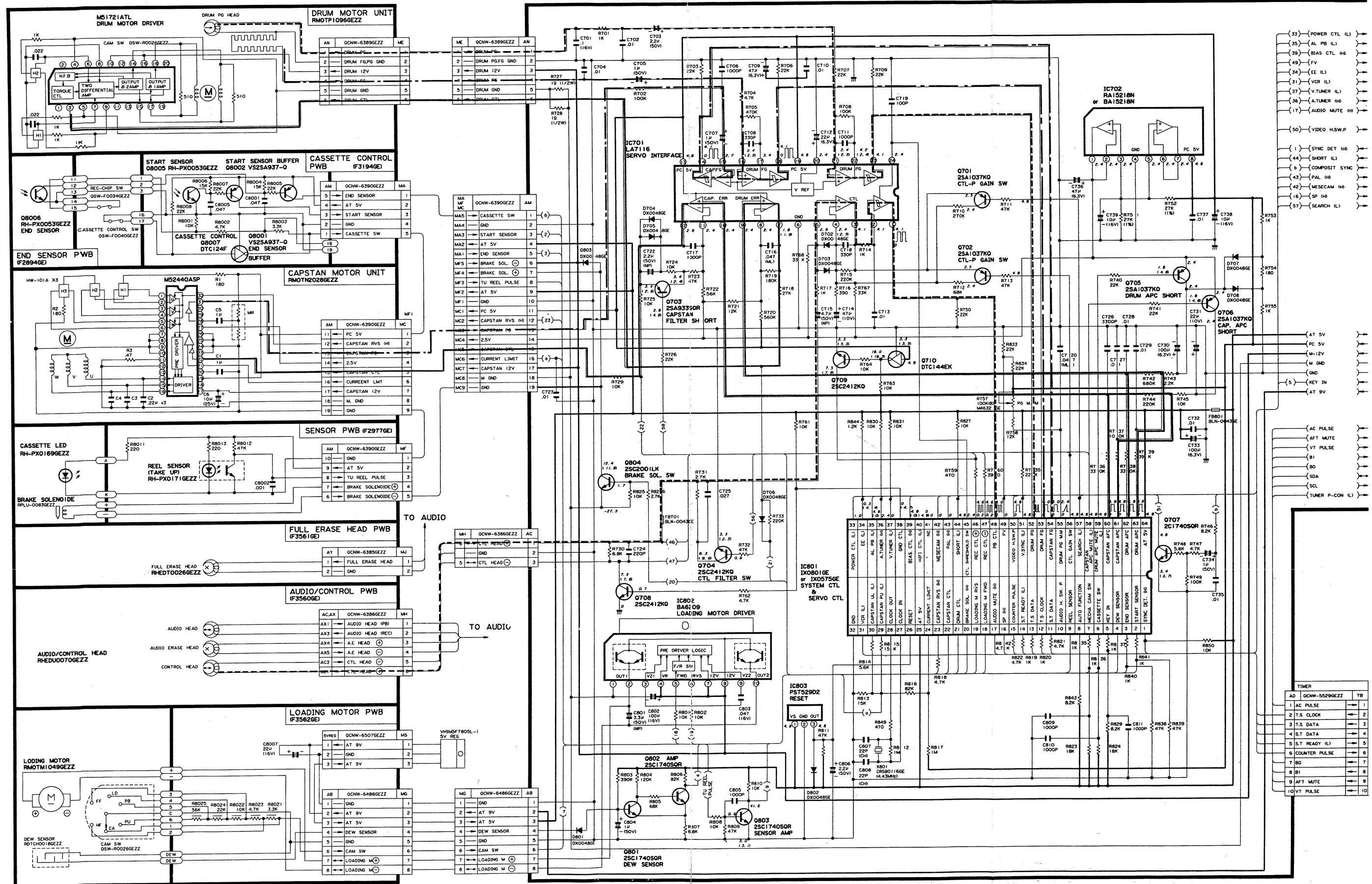
– Drum Phase Comparison Signal

- Drum Frequency Comparison Signal

- Capstan Error Voltage

- **Playback Control Comparison Signal**

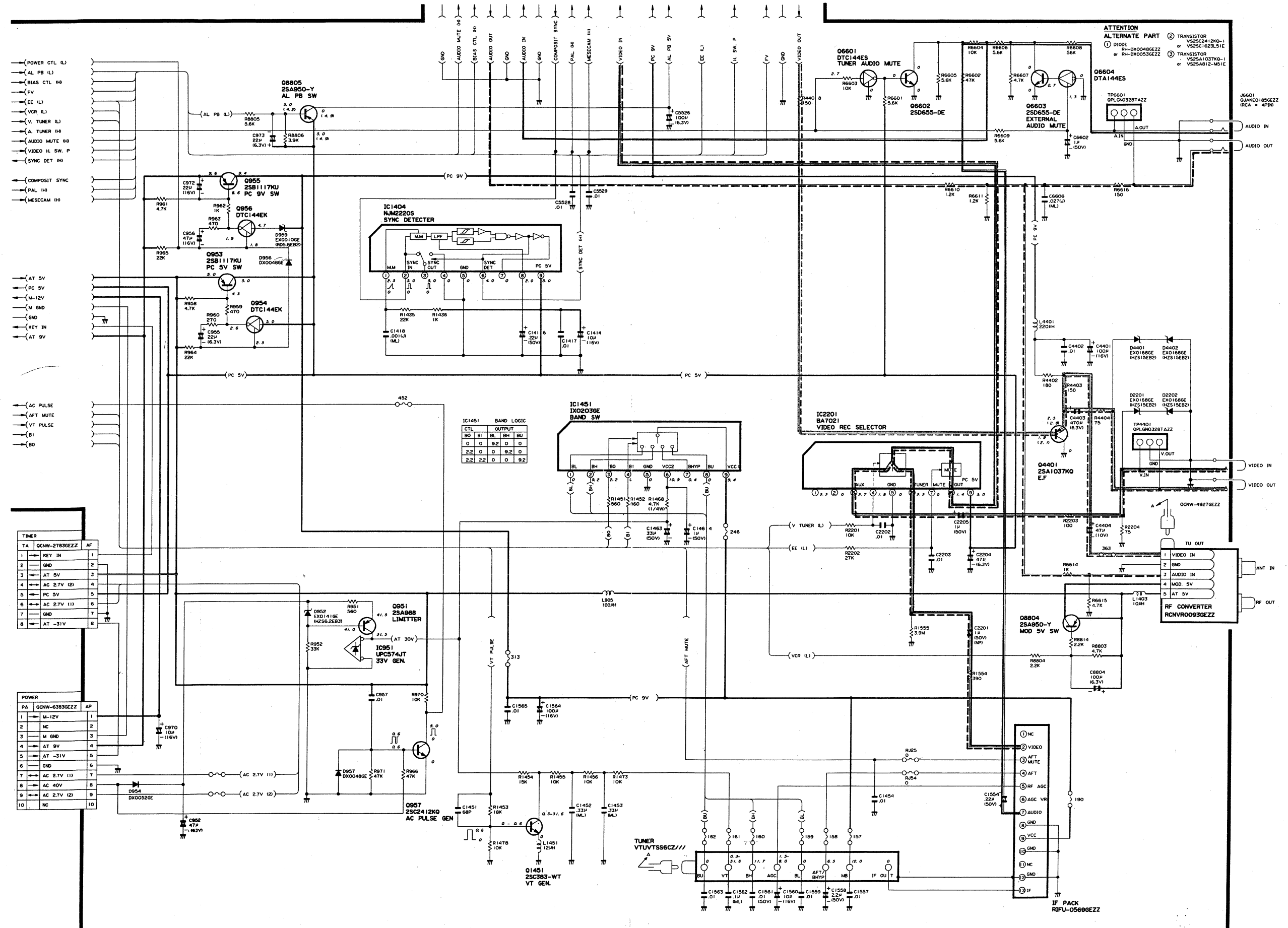
- Capstan Frequency Comparison Signal



_____ Audio Record Signal
 ----- Audio Playback Signal

} Audio E-E Signal

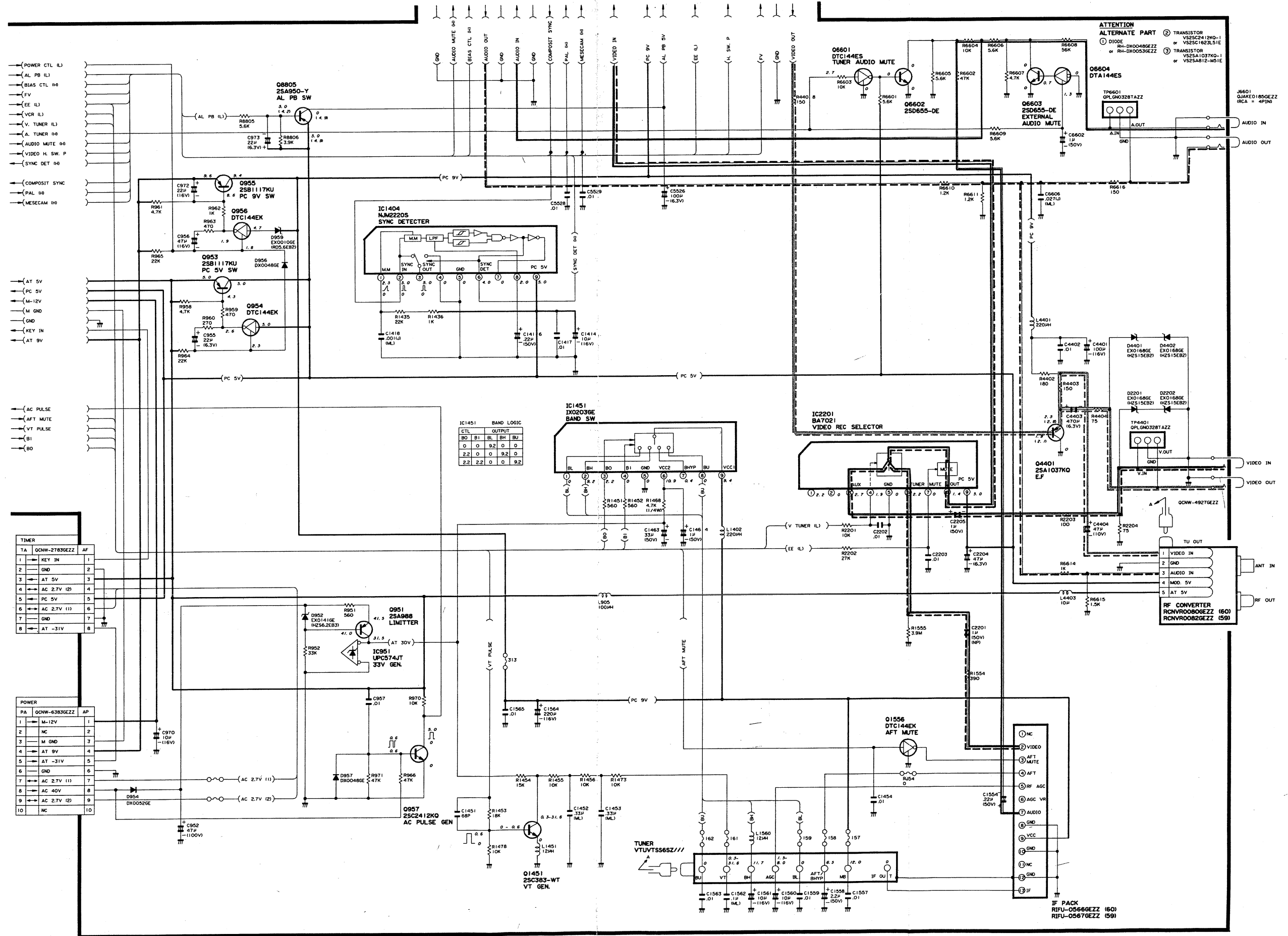
===== Recording Luminance / Chrominance Signal }
===== Playback Luminance / Chrominance Signal } Video E-E Signal

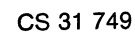


SERVO, SYSTEM CONTROL, Y/C, AUDIO CIRCUIT DIAGRAM MAIN 2 FOR VR3260/95

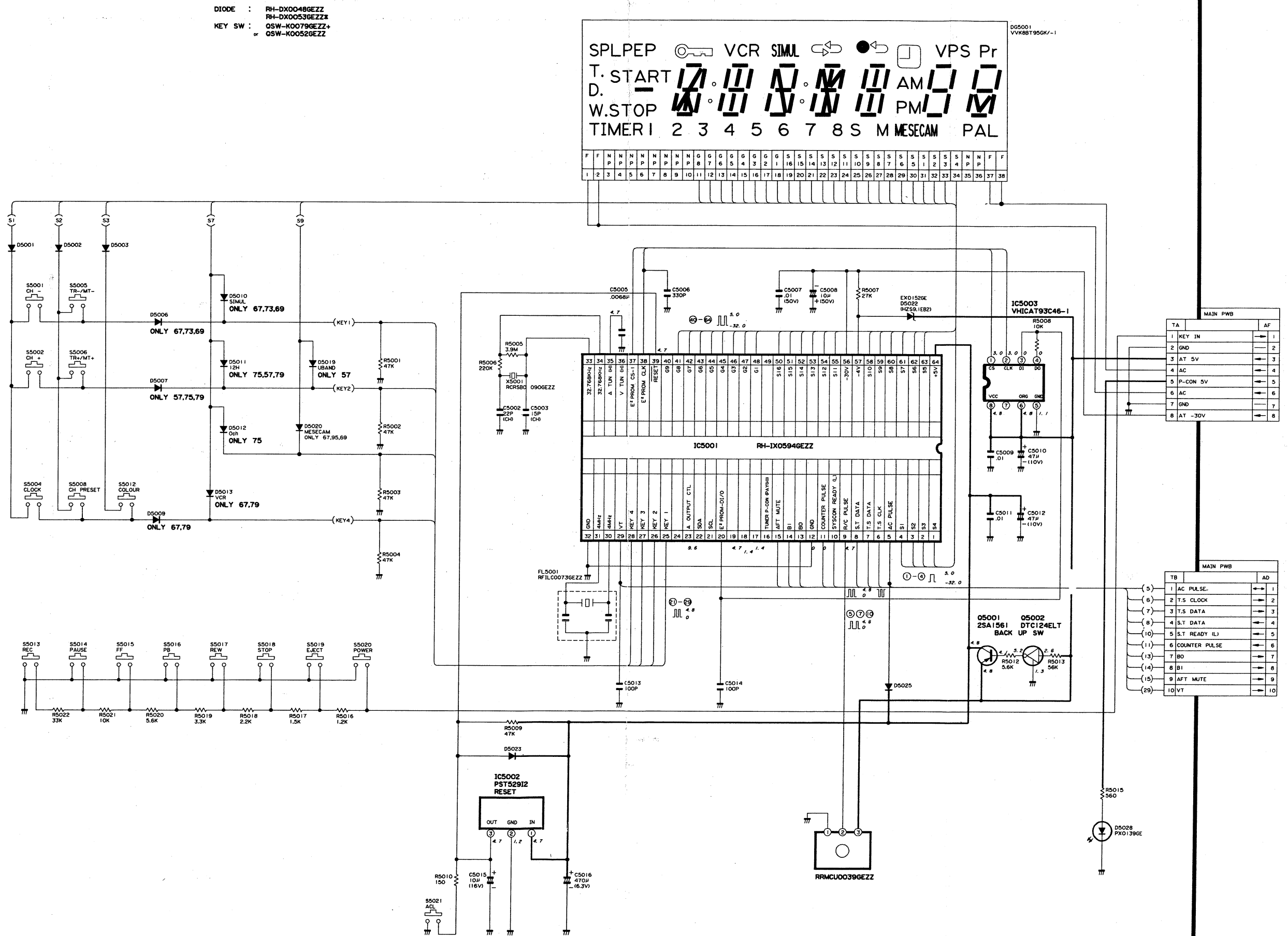
——— Audio Recording Signal } Audio E-E Signal
 - - - - - Audio Playback Signal }

===== Recording Luminance / Chrominance Signal } Video E-E Signal
===== Playback Luminance / Chrominance Signal }

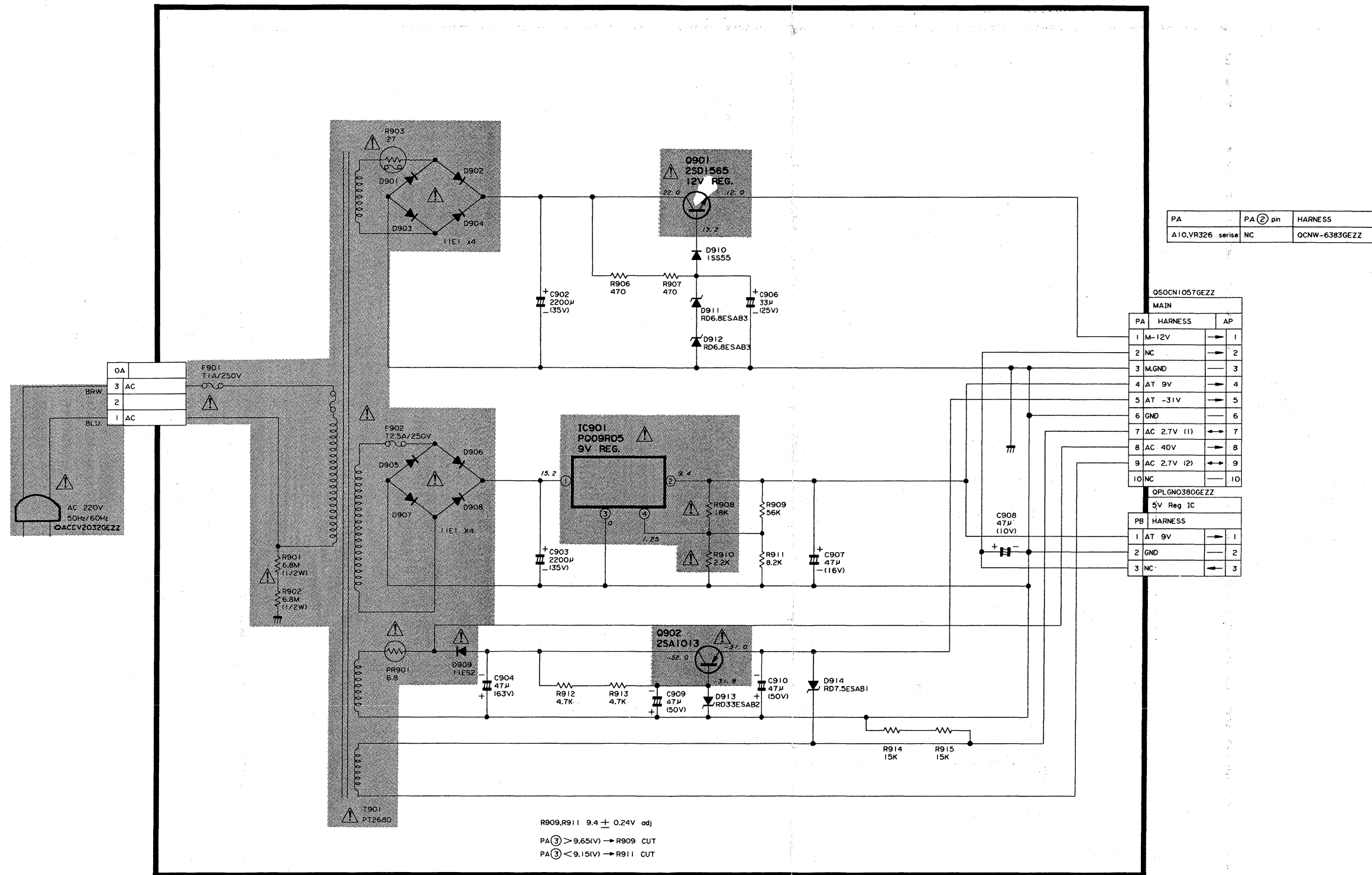




TIMER CIRCUIT DIAGRAM



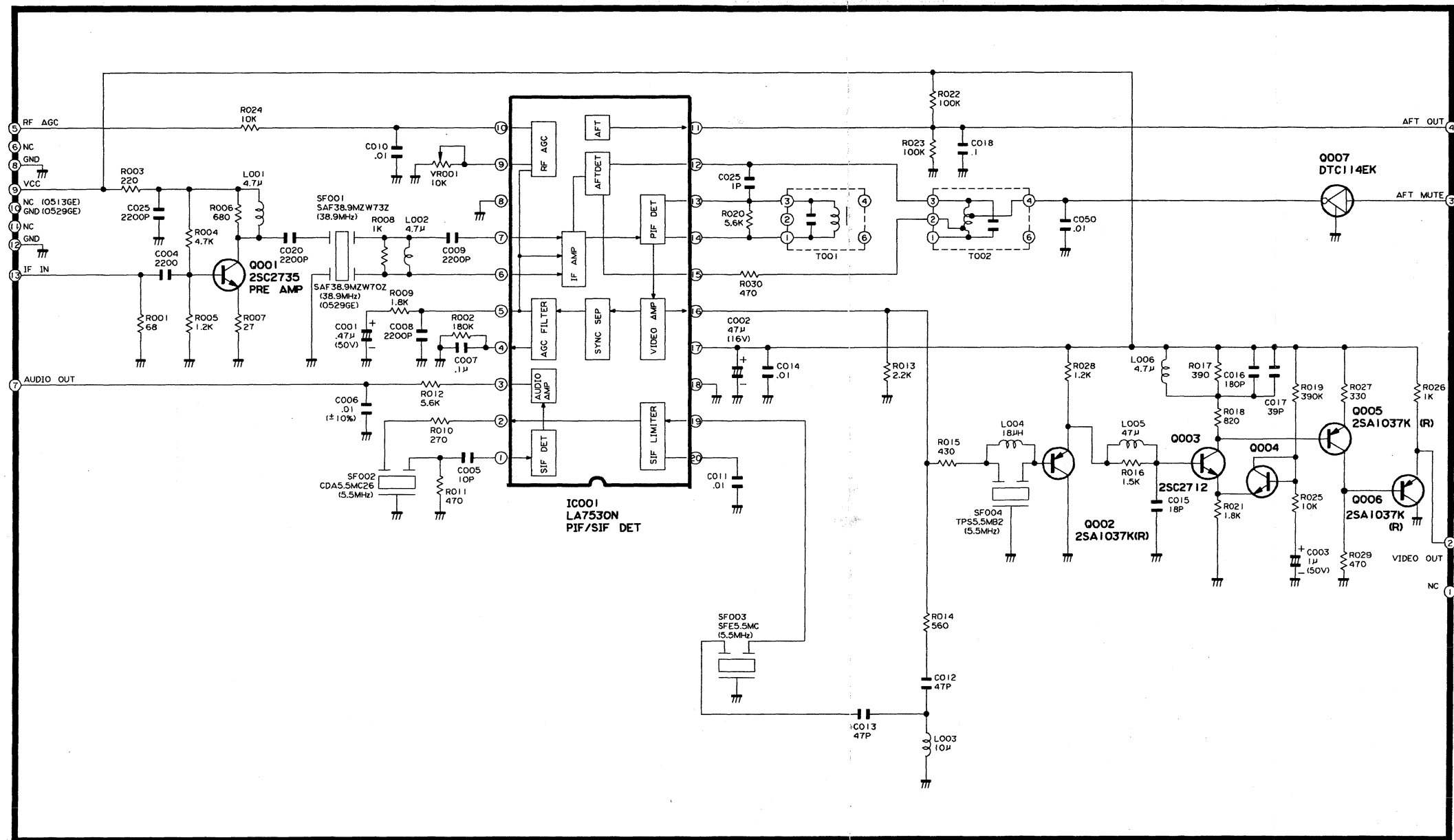
POWER CIRCUIT DIAGRAM FOR VR3260/67



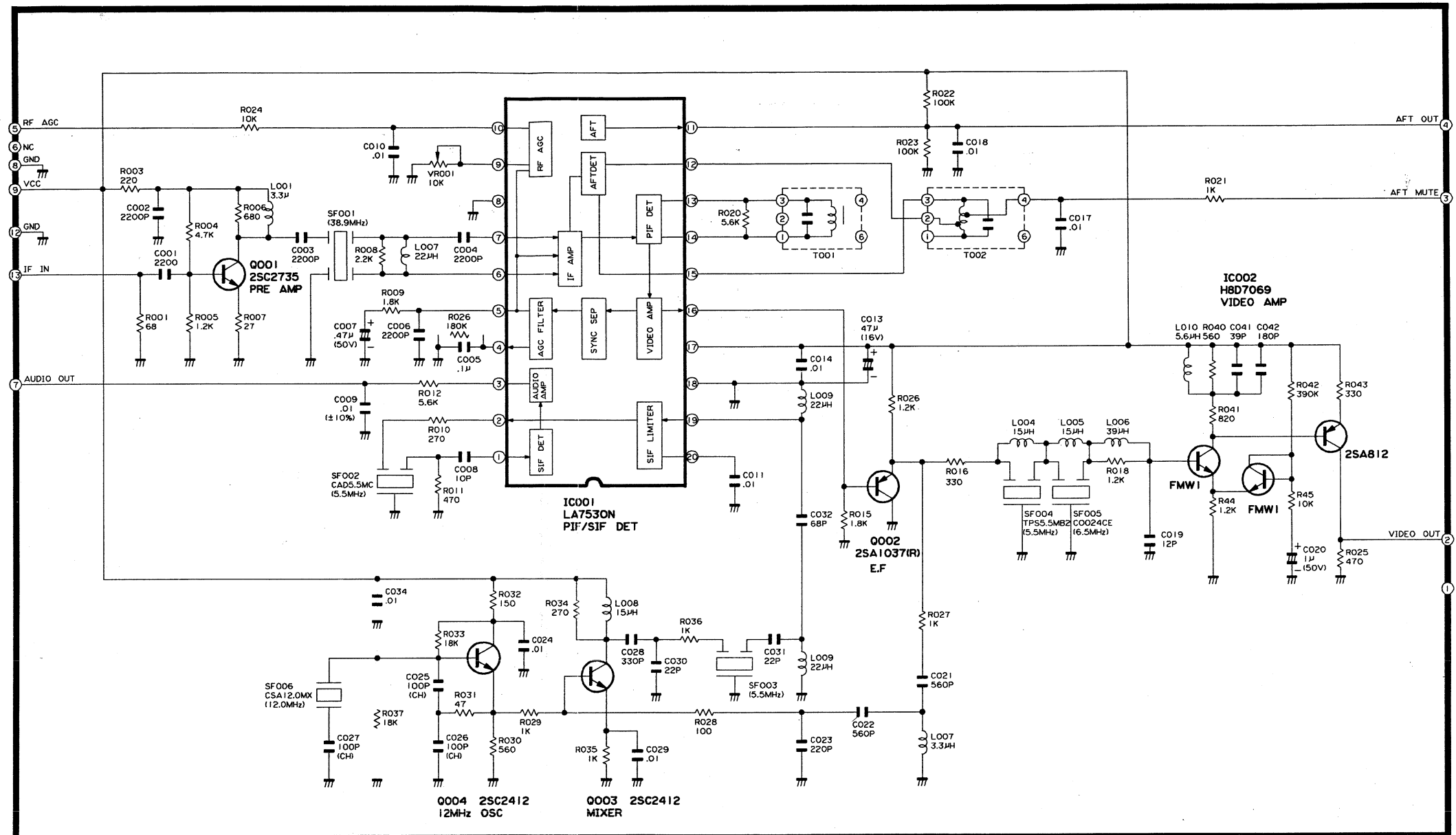
R909, R911 $9.4 \pm 0.24V$ adj
 PA③ $> 9.65(V) \rightarrow R909$ CUT
 PA③ $< 9.15(V) \rightarrow R911$ CUT

Q5OCN1057GEZZ	
MAIN	
PA	HARNESS
1	M-12V →
2	NC →
3	M.GND —
4	AT 9V →
5	AT -31V →
6	GND —
7	AC 2.7V (1) ↔
8	AC 40V →
9	AC 2.7V (2) ↔
10	NC —
QPLGN0380GEZZ	
5V Reg IC	
PB	HARNESS
1	AT 9V →
2	GND —
3	NC ←

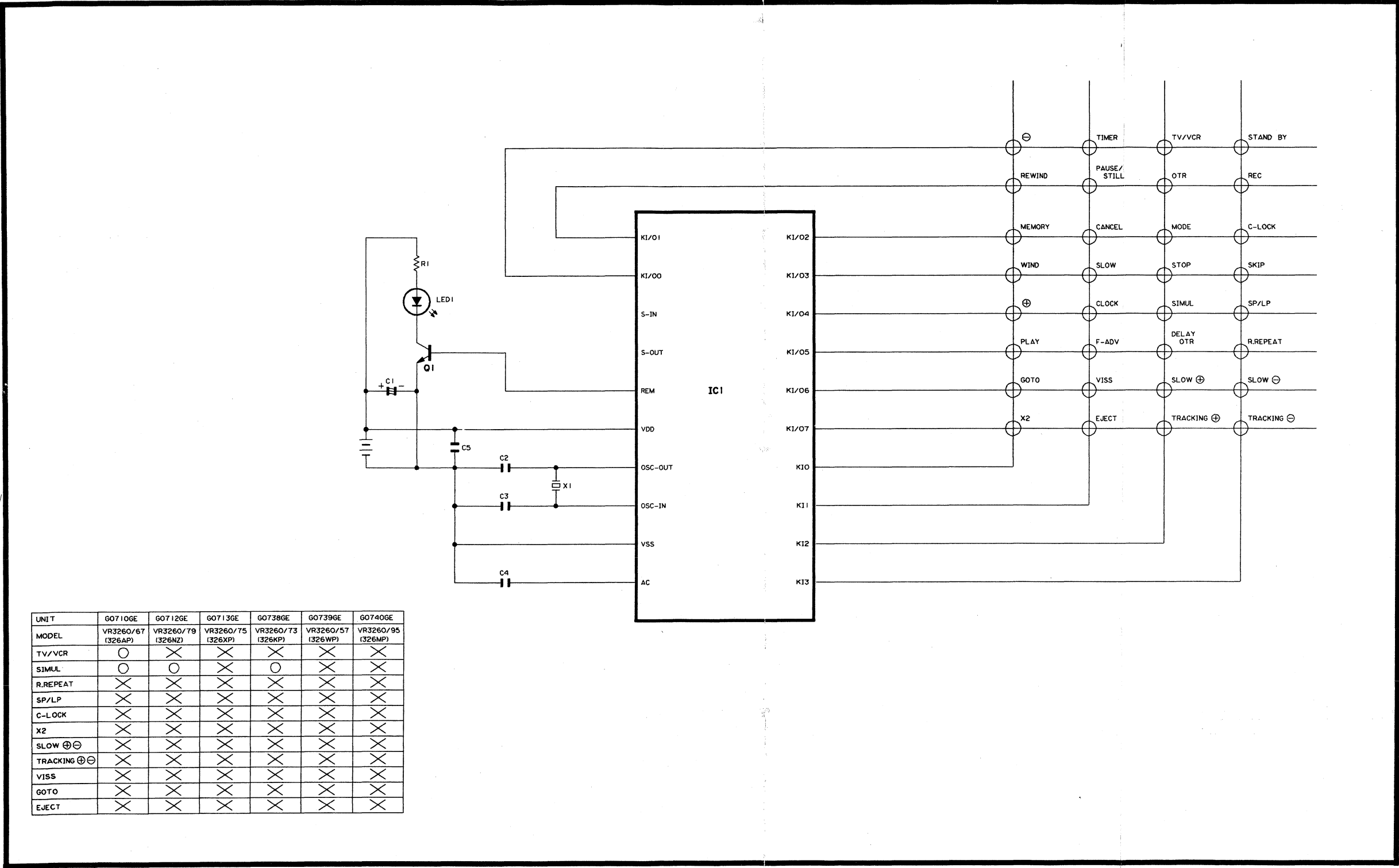
IF PACK CIRCUIT DIAGRAM FOR VR3260/67



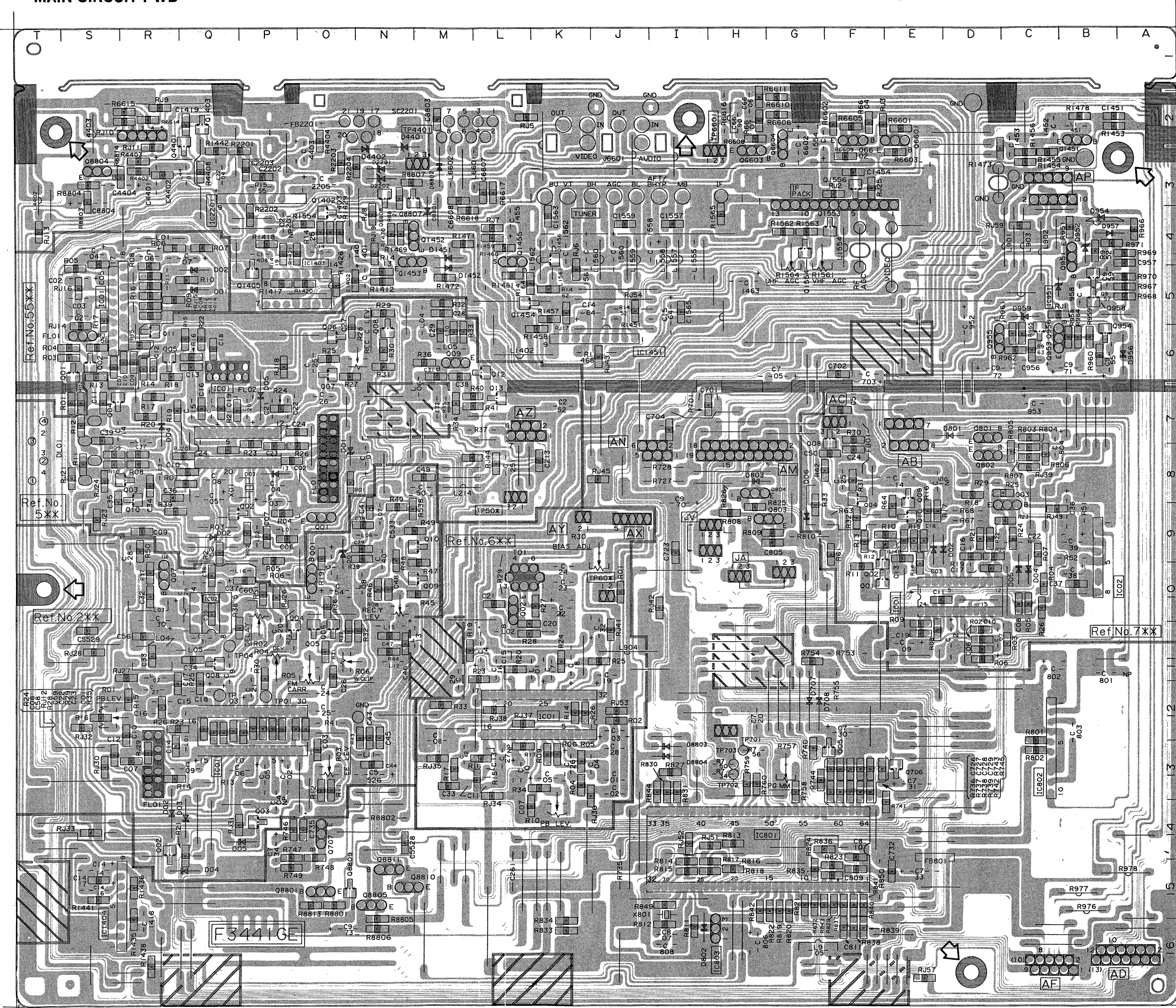
IF PACK CIRCUIT DIAGRAM FOR VR3260/95



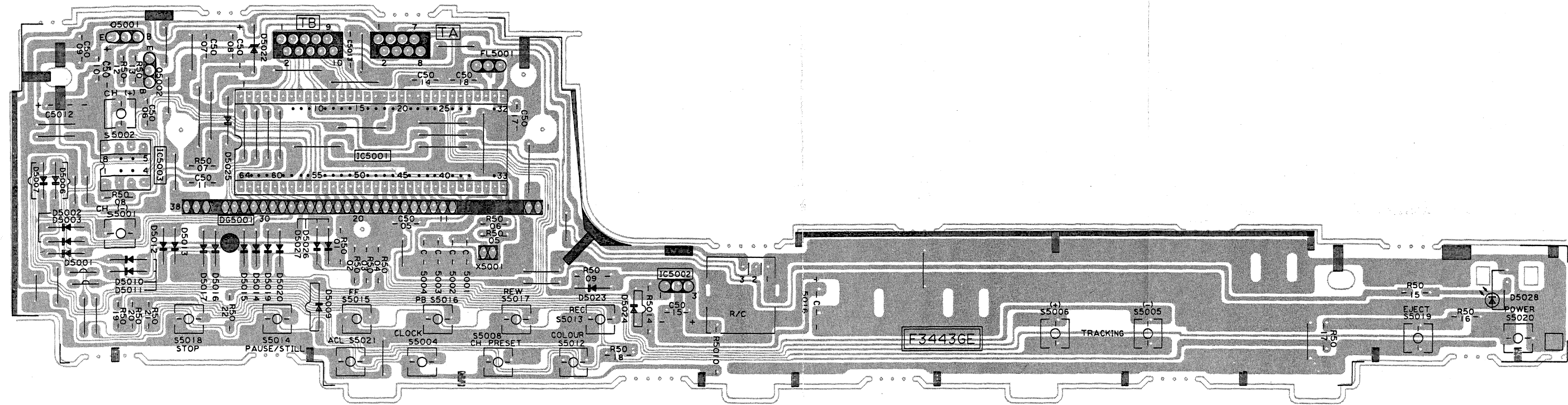
INFRARED REMOTE CONTROL CIRCUIT DIAGRAM



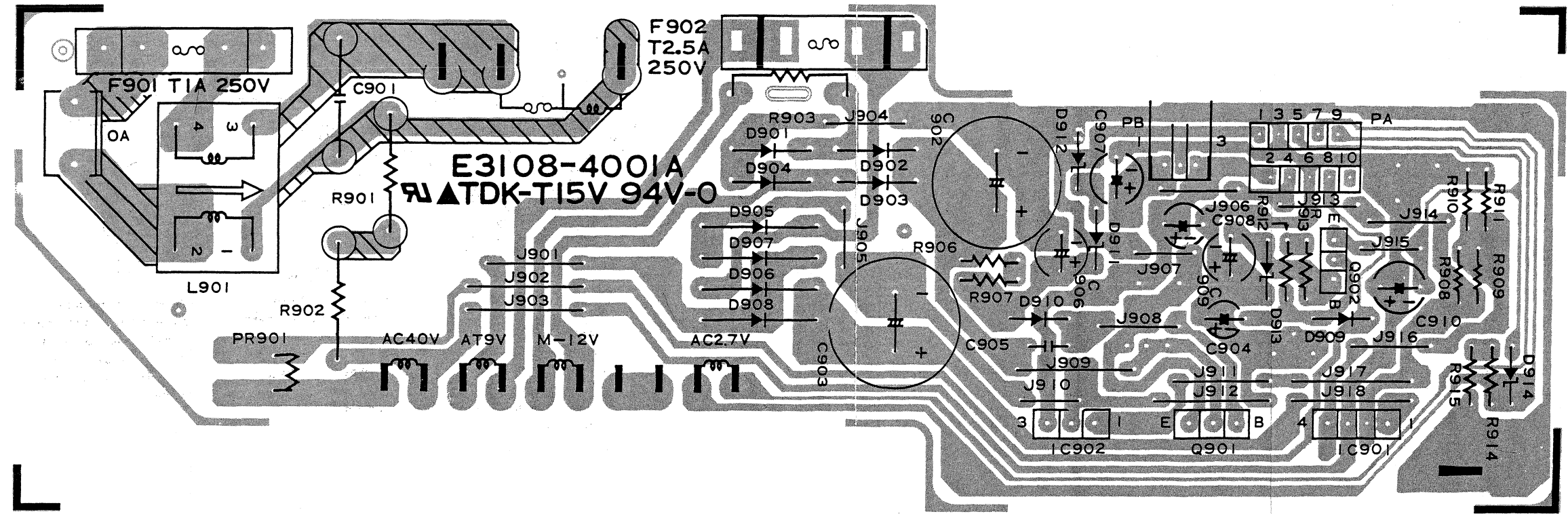
MAIN CIRCUIT PWB



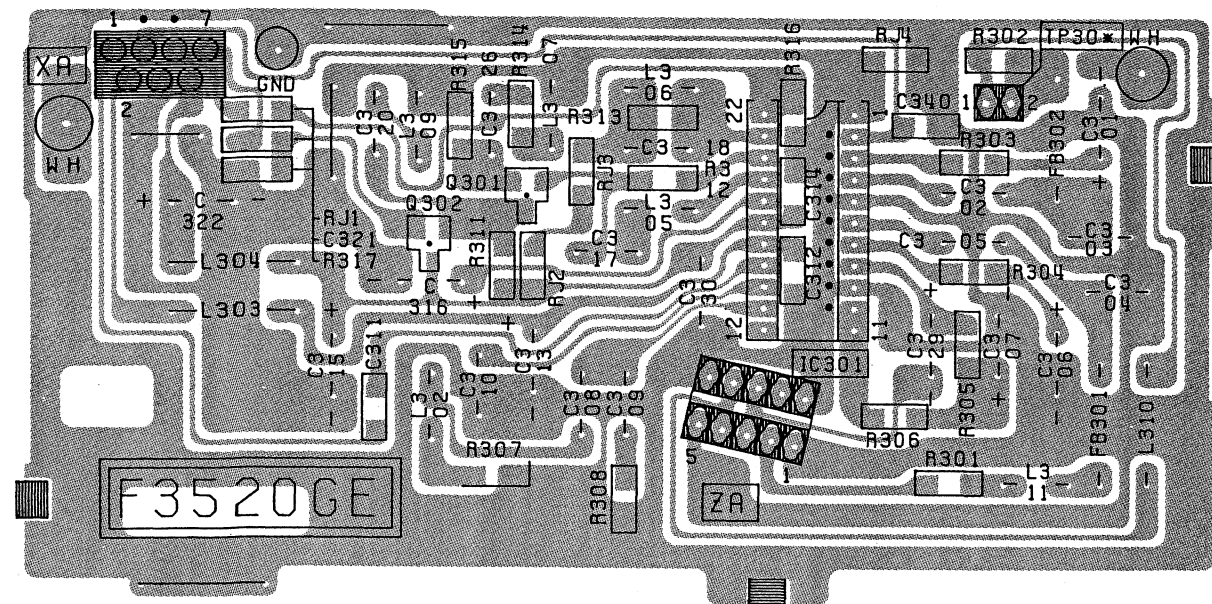
TIMER CIRCUIT PWB



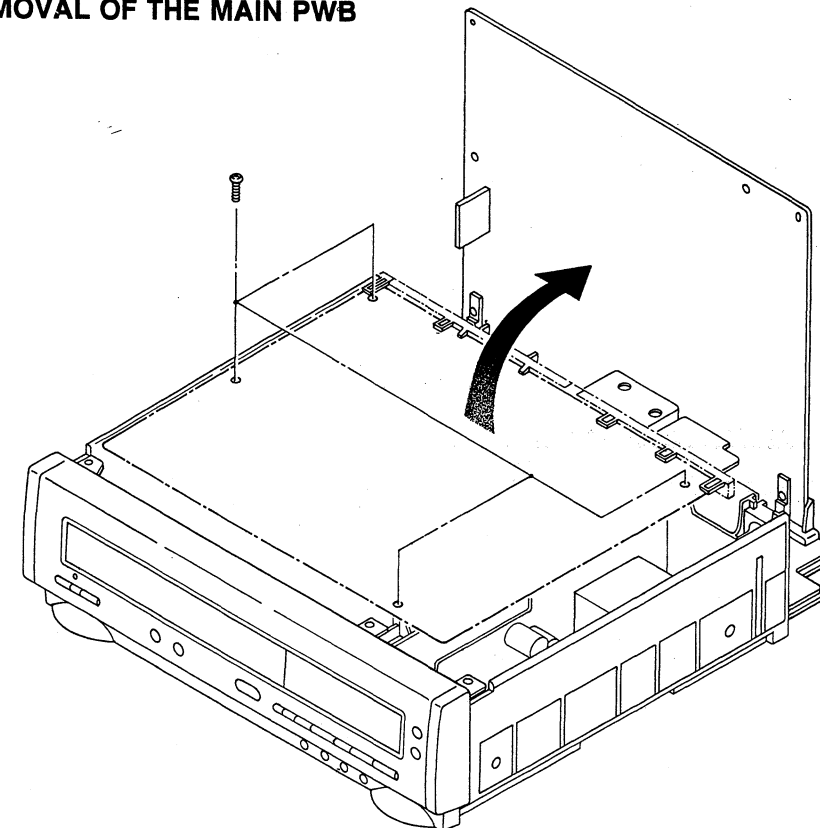
POWER CIRCUIT PWB



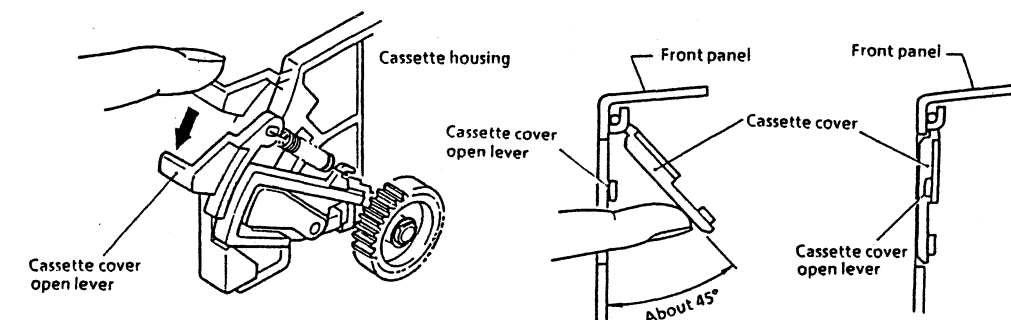
HEAD AMPLIFIER CIRCUIT PWB



REMOVAL OF THE MAIN PWB



PRECAUTIONS ON FRONT PANEL SET-UP

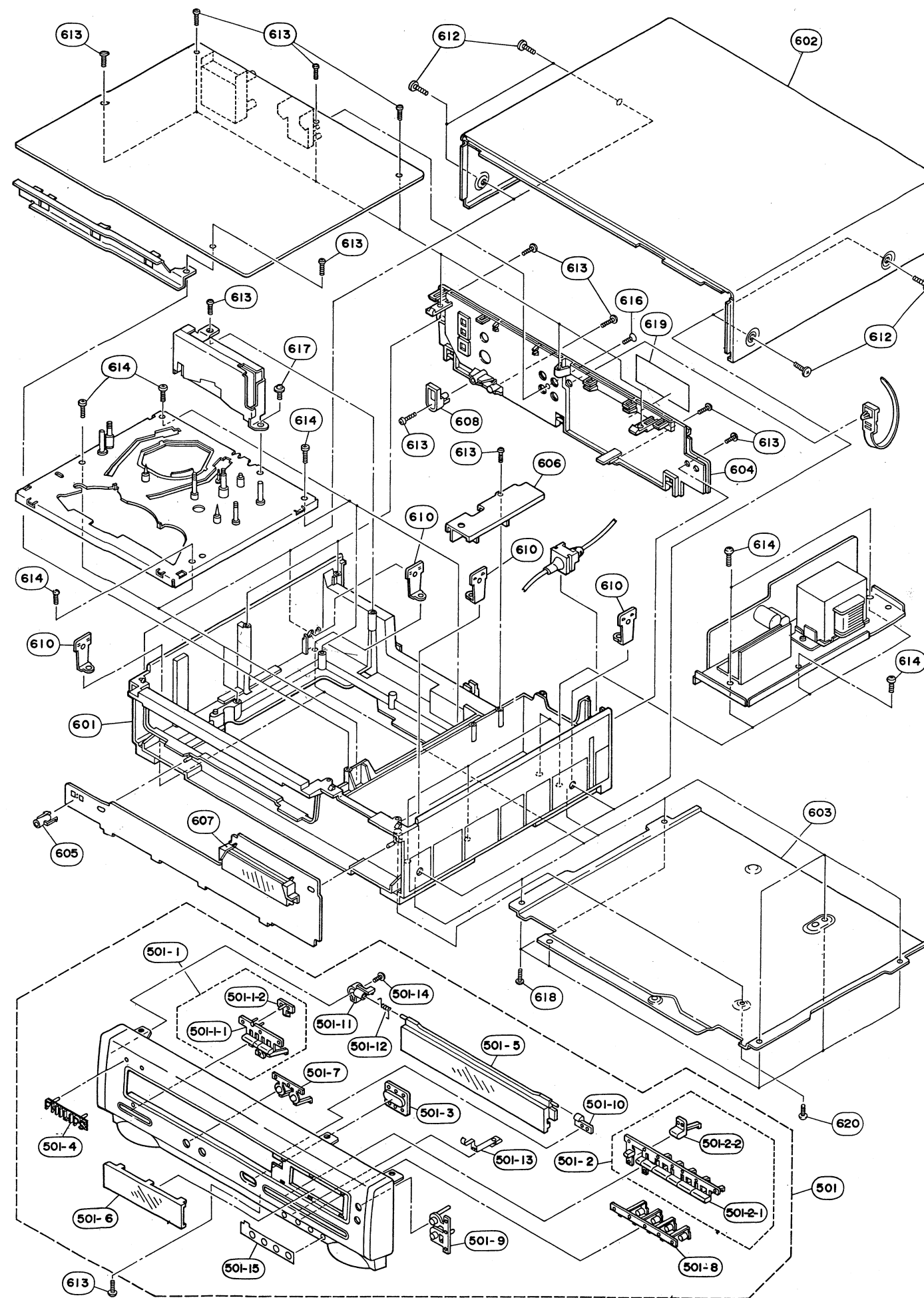


Before attaching the front panel in position, make sure that the cassette cover open lever is in its right place (lowermost). If it is out of position, push it down with a finger.

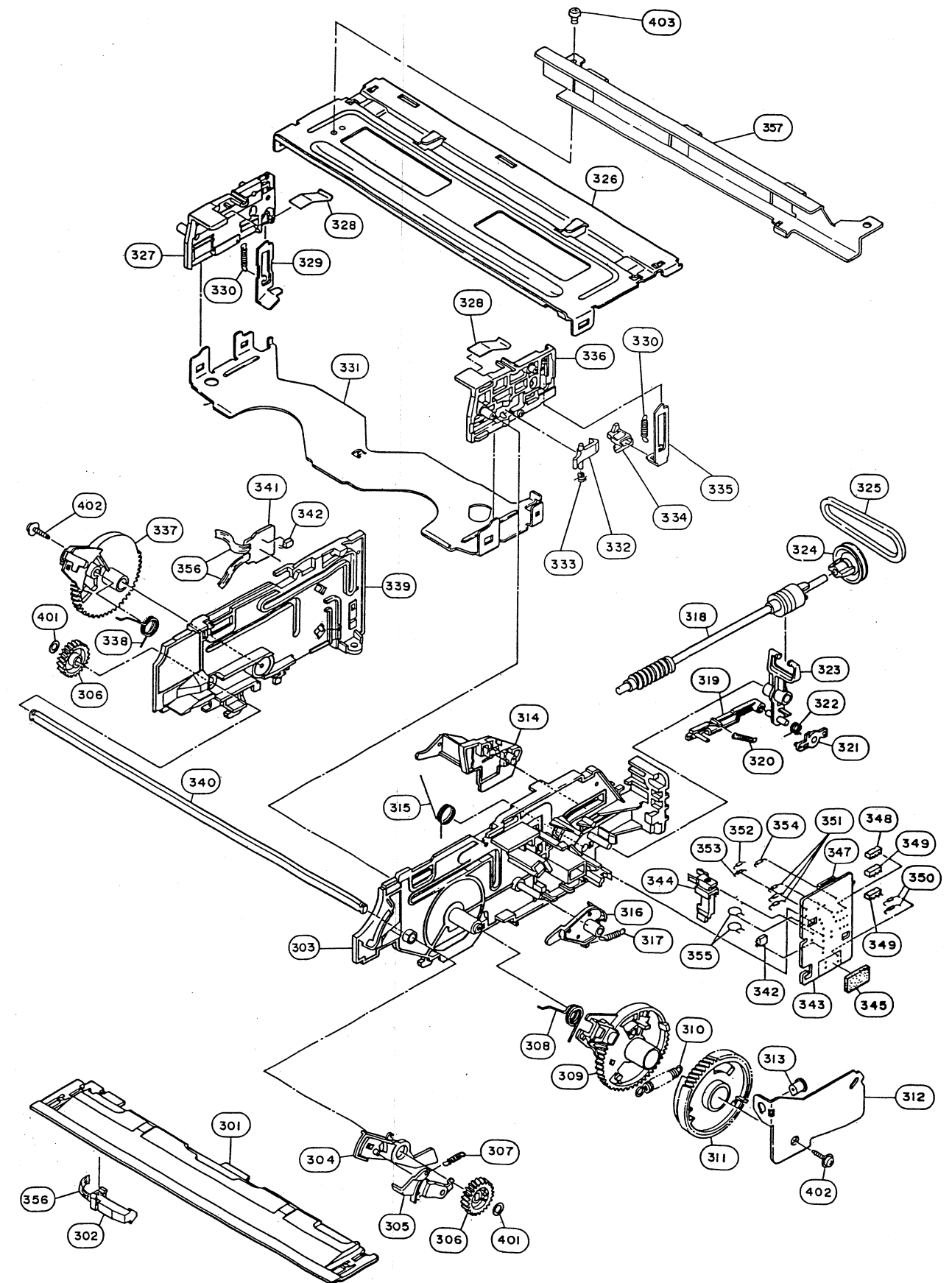
Keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover. Now fix the front panel in place.

* Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing.

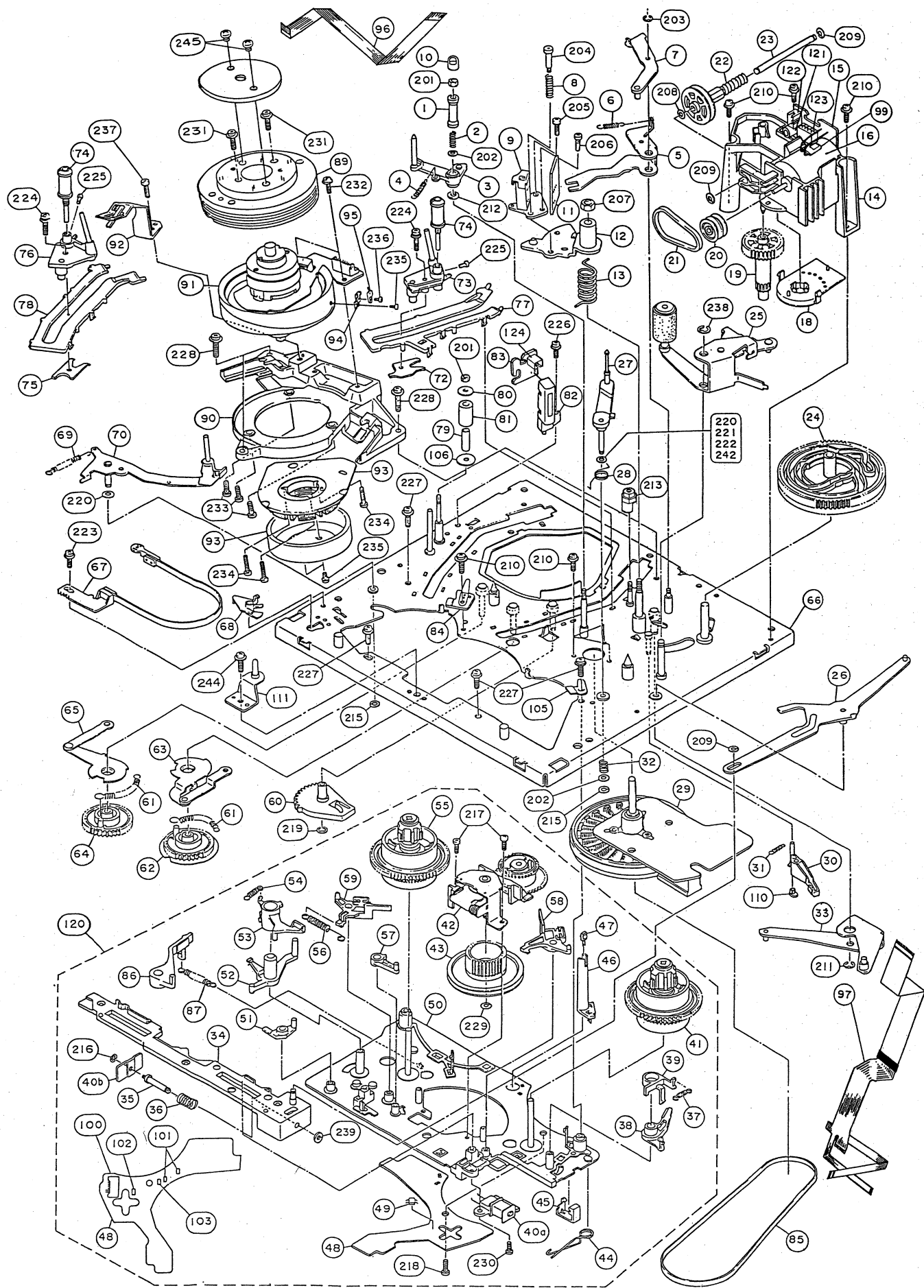
MECHANICAL / FRONT PANEL PARTS



CASSETTE HOUSING CONTROL PARTS



MECHANISM CHASSIS PARTS



PARTS LIST VR3260/67/95**FRONT PANEL PARTS**

501	4822 443 40974	FRONT PANEL ASS'Y
501-1	4822 410 60983	STANDBY BUTTON ASS'Y
501-2	4822 410 60984	MODE BUTTON ASS'Y
501-3	4822 443 63195	R/C COVER
501-4	4822 459 11011	BRAND BADGE
501-5	4822 443 63197	CASSETTE FLAP
501-6	4822 443 63198	DISPLAY COVER
501-7	4822 410 60986	TRACKING BUTTON
501-8	4822 410 60989	TUNING BUTTON
501-9	4822 410 60991	CHANNEL BUTTON
501-10	4822 403 70189	SHAFT HOLDER, RIGHT
501-11	4822 403 70191	SHAFT HOLDER, LEFT
501-12	4822 492 70373	SPRING, FLAP
501-13	4822 492 70798	EARTH SPRING
501-14	4822 502 12853	SCREW
501-15	4822 459 80712	INDICATION PLATE

MECHANICAL PARTS

601	4822 464 50818	MAIN FRAME
602	4822 443 40975	UPPER CABINET
603	4822 443 51205	BOTTOM PLATE
604	4822 443 63193	ANTENNA TERMINAL COVER VR3260/67
604	4822 443 63196	ANTENNA TERMINAL COVER VR3260/95
605	4822 256 91547	LED HOLDER, STANDBY
606	4822 256 91345	HOLDER, POWER
607	4822 256 91735	HOLDER, FLUORESCENT DISPLAY TUBE
608	4822 403 70192	HOLDER, RF CONVERTER
610	4822 466 82753	EARTH PLATE
612	4822 502 12993	SCREW
613	4822 502 12542	SCREW
614	4822 502 13157	SCREW
616	4822 502 13707	SCREW
617	4822 502 11774	SCREW
618	4822 503 11061	SCREW
620	4822 502 13697	SCREW
621	4822 466 82764	EARTH PLATE

MISCELLANEOUS

4822 321 23101	ANTENNA COAXIAL CABLE
4822 218 30573	I.R.- REMOTE CONTROL VR3260/67
4822 218 30574	I.R.- REMOTE CONTROL VR3260/95

MAIN CIRCUIT

Q201	4822 130 42319	2SD471-KL	IC1404	4822 209 61519	VHINJM2220S-1
Q206	4822 130 60146	DTC144EK	IC1451	4822 209 10892	RH-IX0203GEZZ
Q207	4822 130 60147	2C1740SQR	IC2201	4822 209 72016	VHIBA7021//-1
Q208	4822 130 61269	2SA1037KQ	IC5501	4822 209 63308	VHIBA7025L/-1
Q209	4822 130 61272	2SC2412KQ			
Q210	4822 130 61272	2SC2412KQ			
Q501	4822 130 42319	2SD471-KL	D201	4822 130 80552	HZS6
Q502	4822 130 61272	2SC2412KQ	D202	4822 130 80969	1N4531
Q503	4822 130 61272	2SC2412KQ	D501	4822 130 80552	HZS6
Q504	4822 130 61272	2SC2412KQ	D502	4822 130 80969	1N4531
Q505	4822 130 61272	2SC2412KQ	D503	4822 130 80969	1N4531
Q506	4822 130 60146	DTC144EK	D505	4822 130 80969	1N4531
Q507	4822 130 60146	DTC144EK	D702	4822 130 80969	1N4531
Q508	4822 130 61272	2SC2412KQ	D703	4822 130 80969	1N4531
Q509	4822 130 60148	2SA933SQR	D704	4822 130 80969	1N4531
Q511	4822 130 60146	DTC144EK	D705	4822 130 80969	1N4531
Q512	4822 130 60146	DTC144EK	D706	4822 130 80969	1N4531
Q513	4822 130 60146	DTC144EK	D707	4822 130 80969	1N4531
Q602	4822 130 61835	2SC3939SQR	D708	4822 130 80969	1N4531
Q701	4822 130 61269	2SA1037KQ	D801	4822 130 80969	1N4531
Q702	4822 130 61269	2SA1037KQ	D802	4822 130 80969	1N4531
Q703	4822 130 60148	2SA933SQR	D803	4822 130 80969	1N4531
Q704	4822 130 61272	2SC2412KQ	D952	4822 130 80413	HZS6.2EB3
Q705	4822 130 61269	2SA1037KQ	D954	4822 130 80411	ERA15-02
Q706	4822 130 61269	2SA1037KQ	D956	4822 130 80969	1N4531
Q707	4822 130 60147	2C1740SQR	D957	4822 130 80969	1N4531
Q708	4822 130 61272	2SC2412KQ	D959	4822 130 32668	RD5.6EB2
Q709	4822 130 61272	2SC2412KQ	D2201	4822 130 80685	HZS15EB2
Q710	4822 130 60146	DTC144EK	D2202	4822 130 80685	HZS15EB2
Q801	4822 130 60147	2C1740SQR	D4401	4822 130 80685	HZS15EB2
Q802	4822 130 60147	2C1740SQR	D4402	4822 130 80685	HZS15EB2
Q803	4822 130 60147	2C1740SQR	D5501	4822 130 80969	1N4531
Q804	4822 130 60258	2SC2001LK	D5502	4822 130 80969	1N4531
Q951	4822 130 42386	2SA988			
Q953	4822 130 60151	2SB1117KU			
Q954	4822 130 60146	DTC144EK	C204	4822 124 41038	3.3μF 50V ELECTR.
Q955	4822 130 60151	2SB1117KU	C225	4822 121 42216	0.022μF MYLAR
Q956	4822 130 60146	DTC144EK	C254	4822 124 40864	100μF 6.3V ELECTR.
Q957	4822 130 61272	2SC2412KQ	C508	4822 122 33264	0.1μF 16V ELECTR.
Q1451	4822 130 42803	2SC383-WT	C515	4822 121 42216	0.022μF MYLAR
Q1556	4822 130 60146	DTC144EK	C521	4822 121 42216	0.022μF MYLAR
Q4401	4822 130 61269	2SA1037KQ	C604	4822 121 43369	0.012μF MYLAR
Q5501	4822 130 61272	2SC2412KQ	C608	4822 121 42381	1500pF MYLAR
Q5502	4822 130 60146	DTC144EK	C610	4822 124 40865	100μF 10V ELECTR.
Q6601	4822 130 42594	DTC144ES	C616	4822 121 42223	0.015μF MYLAR
Q6602	4822 130 41607	2SD655-DE	C623	4822 121 51391	5600pF 100V POLYPRO.
Q6603	4822 130 41607	2SD655-DE	C627	4822 124 41037	1μF 50V ELECTR.
Q6604	4822 130 42682	DTA144ES	C629	4822 121 43369	0.012μF MYLAR
Q8801	4822 130 42278	2SA950-Y	C714	4822 124 22486	47μF 10V ELECTR.
Q8804	4822 130 42278	2SA950-Y	C715	4822 121 90043	4.7μF 50V ELECTR.
Q8805	4822 130 42278	2SA950-Y	C722	4822 124 41105	2.2μF 50V ELECTR.
Q8809	4822 130 61272	2SC2412KQ	C730	4822 124 40864	100μF 6.3V ELECTR.
			C733	4822 124 40864	100μF 6.3V ELECTR.
			C801	4822 124 41038	3.3μF 50V ELECTR.
			C802	4822 124 40866	100μF 16V ELECTR.
			C803	4822 126 10301	0.047μF 16V CERAMIC
			C1418	4822 121 42402	1000pF MYLAR
			C1564	4822 124 40866	100μF 16V ELECTR.
			C2201	4822 124 41037	1μF 50V ELECTR.
			C4401	4822 124 40866	100μF 16V ELECTR.
			C4403	4822 124 23502	470μF 6.3V ELECTR.
IC201	4822 209 62425	VHIAN3248NK-1			
IC202	4822 209 61539	VHILC8992//-1			
IC501	4822 209 63307	RH-IX0964GEZZ			
IC601	4822 209 63309	VHIBA7767AS-1			
IC701	4822 209 72477	VHILA7116//-1			
IC702	4822 209 63312	VHIXRA15218-1			
IC801	4822 209 63306	RH-IX0801GEZZ			
IC802	4822 209 82196	VHIBA6209//-1			
IC803	4822 209 63311	VHIPST529D2-1			
IC951	4822 209 72022	VHIUPC574JT-1			

			DELAY LINE		
C5503	4822 121 42128	0.027μF MYLAR	DL501	4822 320 40215	DELAY LINE
C5506	4822 124 40866	100μF 16V ELECTR.			
C5526	4822 124 40864	100μF 6.3V ELECTR.			
C6606	4822 121 43816	8200pF MYLAR			
C8804	4822 124 90372	100μF 6.3V ELECTR.			
			T601	4822 146 21365	TRANSFORMER
					
R201	4822 101 30732	22k(B) PB LEVEL ADJ.	X501	4822 242 73866	CRYSTAL
R202	4822 100 11222	470(B) DELAY LEVEL ADJ.	X801	4822 242 73867	CRYSTAL
R203	4822 101 30732	22k(B) EE LEVEL ADJ.	MISCELLANEOUS		
R204	4822 101 30728	4.7k(B) DEV. ADJ.			
R205	4822 101 30731	10k(B) FM CARR. ADJ.	4822 214 33173 IF PACK VR3260/67 4822 214 33155 IF PACK VR3260/95 4822 210 10411 TUNER VR3260/67 4822 210 10408 TUNER VR3260/95 4822 214 33169 RF CONVERTER VR3260/67 4822 214 33154 RF CONVERTER VR3260/95		
R206	4822 101 30731	10k(B) W CLIP ADJ.			
R208	4822 100 11223	1k(B) REC Y LEVEL ADJ.	J6601	4822 267 31272	JACK AUDIO IN OUT
R504	4822 101 30729	2.2k(B) REC C LEVEL ADJ.	TP501	4822 265 40331	PLUG 3 PIN
R610	4822 100 11278	10k(B) PB LEVEL ADJ.	TP601	4822 267 20245	PLUG 2 PIN
R630	4822 100 11384	470k(B) BIAS ADJ.	TP4401	4822 265 40331	PLUG 3 PIN
R757	4822 101 30733	100k(B) PG M.M.	TP6601	4822 265 40331	PLUG 3 PIN
			AB	4822 267 51065	SOCKET 8 PIN
			AC	4822 265 30422	PLUG 3 PIN
R751	4822 116 80989	27kΩ 1/8W METAL OXYDE	AD	4822 267 51063	SOCKET 10 PIN
R752	4822 116 80989	27kΩ 1/8W METAL OXYDE	AF	4822 267 51066	SOCKET 8 PIN
			AM	4822 267 60297	SOCKET 19 PIN
			AN	4822 267 40805	SOCKET 6 PIN
L201	4822 157 10271	68μH	AP	4822 267 51062	SOCKET 10 PIN
L203	4822 157 10135	220μH	AX	4822 265 40498	PLUG 5 PIN
L204	4822 157 10235	56μH	AY	4822 265 30419	PLUG 2 PIN
L205	4822 157 53154	33μH	AZ	4822 267 51061	SOCKET 7 PIN
L207	4822 157 10242	47μH	FILTERS		
L208	4822 157 10267	15μH			
L211	4822 157 10266	120μH	FL201	4822 157 53147	FILTER
L212	4822 157 10271	68μH	FL501	4822 157 52771	FILTER
L213	4822 157 10274	150μH	FL502	4822 157 60372	FILTER
L215	4822 157 10276	220μH	FL5501	4822 154 10048	FILTER 4.5MHz
L501	4822 157 53278	18μH			
L502	4822 157 10268	3.3μH			
L503	4822 157 10267	15μH			
L504	4822 157 10276	220μH			
L505	4822 157 10276	220μH			
L506	4822 157 10264	560μH			
L601	4822 157 10221	8.2mH			
L602	4822 157 60362	220μH			
L1451	4822 157 10232	12μH			
L1560	4822 157 10158	12μH			
L4401	4822 156 40881	220μH			
L4403	4822 157 10157	10μH			
L5501	4822 157 10135	220μH			
L5502	4822 157 10218	15mH			

TIMER CIRCUIT

			MISCELLANEOUS S5016 4822 271 30731 SWITCH, PLAYBACK S5017 4822 271 30731 SWITCH, REWIND S5018 4822 271 30731 SWITCH, STOP S5019 4822 271 30731 SWITCH, EJECT S5020 4822 271 30731 SWITCH, POWER S5021 4822 271 30731 SWITCH, ALL CLEAR TA 4822 267 50752 SOCKET, 8 PIN TB 4822 267 50783 SOCKET, 10 PIN		
Q5001	4822 130 61278	2SA1561			
Q5002	4822 130 42821	DTC124EL			
					
IC5001	4822 209 63301	RH-IX0594GEZZ			
IC5002	4822 209 73447	VHIPST52912-1			
IC5003	4822 209 63304	VHICAT93C46-1			
					
D5001	4822 130 80969	1N4531			
D5002	4822 130 80969	1N4531			
D5003	4822 130 80969	1N4531			
D5006	4822 130 80969	1N4531			
D5009	4822 130 80969	1N4531			
D5010	4822 130 80969	1N4531			
D5013	4822 130 80969	1N4531			
D5020	4822 130 80969	1N4531			
D5022	4822 130 80549	HZS9.1E			
D5023	4822 130 80969	1N4531			
D5025	4822 130 80969	1N4531			
D5028	4822 130 80417	PX0139GEZZ			
					
X5001	4822 242 72893	CRYSTAL			
FILTER					
FL5001	4822 242 73864	FILTER, 4MHz			
					
C5016	4822 124 23502	470µF 6.3V ELECTR.			
MISCELLANEOUS					
DG5001	4822 218 20829	I.R.-R.C.-RECEIVER			
	4822 130 90928	FLUORESCENT DISPLAY TUBE			
S5001	4822 271 30731	SWITCH, CHANNEL (-)			
S5002	4822 271 30731	SWITCH, CHANNEL (+)			
S5004	4822 271 30731	SWITCH, CLOCK			
S5005	4822 271 30731	SWITCH, TRACKING (-) / MANUAL TUNING (-)			
S5006	4822 271 30731	SWITCH, TRACKING (+) / MANUAL TUNING (+)			
S5008	4822 271 30731	SWITCH, CHANNEL PRESET			
S5012	4822 271 30731	SWITCH, COLOUR			
S5013	4822 271 30731	SWITCH, RECORD			
S5014	4822 271 30731	SWITCH, PAUSE			
S5015	4822 271 30731	SWITCH, FAST FORWARD			

POWER CIRCUIT

			
Q901	4822 130 61259	2SD1565	
Q902	4822 130 60767	2SA1013	
			
IC901	4822 209 72481	95KUCB0029AZ	
			
D901	4822 130 80205	11E1-TA2	
D902	4822 130 80205	11E1-TA2	
D903	4822 130 80205	11E1-TA2	
D904	4822 130 80205	11E1-TA2	
D905	4822 130 80205	11E1-TA2	
D906	4822 130 80205	11E1-TA2	
D907	4822 130 80205	11E1-TA2	
D908	4822 130 80205	11E1-TA2	
D909	4822 130 81748	11ES2-TA2	
D910	4822 130 82356	1SS53-T4	
D911	4822 130 82196	RD6.8ESAB3	
D912	4822 130 82196	RD6.8ESAB3	
D913	4822 130 82357	RD33EAB2-T4	
D914	4822 130 82358	RD7.5ESAB1-T4	
			
C901	4822 121 51368	0.047μF 250V POLYP.	
C902	4822 124 23108	2200μF 35V ELECTR.	
C903	4822 124 23108	2200μF 35V ELECTR.	
			
R901	4822 116 82747	6.8MΩ 1/2W SOLID	
R902	4822 116 82747	6.8MΩ 1/2W SOLID	
R903	4822 116 82746	0.27Ω FUSE RESISTOR	
R908	4822 111 30941	18kΩ 1/4W CARBON	
R910	4822 111 30942	2.2kΩ 1/4W CARBON	
PR901	4822 111 91976	6.8Ω THERMISTOR	
			
L901	4822 121 20241	LINE FILTER (F0071GE)	
T901	4822 146 21583	TRANSFORMER (PT2680)	
MISCELLANEOUS			
F901	4822 321 10525	AC CORD AC 220V	
F902	4822 253 30245	FUSE, T1A/250V	
OA	4822 253 30353	FUSE, T2.5A/250V	
PA	4822 265 30516	PLUG 3 PIN	
PA	4822 265 41093	PLUG 10 PIN	
PB	4822 265 30867	PLUG 3 PIN	

HEAD AMPLIFIER CIRCUIT

			
Q301	4822 130 60903	2SC2059K	
Q302	4822 130 61272	2SC2412K	
			
IC301	4822 209 63322	VHIXRA7252/-1	
			
L302	4822 157 62837	18μH	
L303	4822 157 10141	100μH	
L304	4822 157 10271	68μH	
L305	4822 157 53154	33μH	
L306	4822 157 10234	22μH	
L307	4822 157 10234	22μH	
L309	4822 157 10274	150μH	
MISCELLANEOUS			
TP301	4822 265 30331	PLUG, 2 PIN	
TP302	4822 265 30331	PLUG, 2 PIN	
ZA	4822 267 40804	SOCKET, 5 PIN	
XA	4822 267 50781	SOCKET, 7 PIN	
FB301	4822 157 53472	FERRITE BEAD	
FB302	4822 157 53472	FERRITE BEAD	

I.R.- REMOTE CONTROL TRANSMITTER

			
Q1	4822 130 62512	2SC4040	
			
IC1	4822 209 63305	MPD6124G	
			
LED1	4822 130 82355	SLR932A	
			
X1	4822 242 72336	432kHz	
CABINET PARTS			
	4822 432 30379	CASE-A VR3260/67	
	4822 432 30381	CASE-A VR3260/95	
	4822 432 30382	CASE-B	
	4822 432 30383	CASE-C	
	4822 462 41758	INFRARED FILTER	
	4822 454 21012	INDICATION PLATE VR3260/67	
	4822 454 21013	INDICATION PLATE VR3260/95	
	4822 276 80402	RUBBER KEY	
	4822 290 81414	BATTERY TERMINAL (A)	
	4822 290 81415	BATTERY TERMINAL (B)	

TAPE DECK PARTS

CHASSIS PARTS

1	4822 528 90691	RETAINING GUIDE	59	4822 403 53535	MAIN SUPPLY BRAKE LEVER
2	4822 492 70049	RETAINING GUIDE SPRING	60	4822 522 32502	LOADING RELAY GEAR
3	4822 403 53507	HALF-LOADING LEVER	61	4822 492 70061	LOADING RECIPROCATING SPRING
4	4822 492 70054	HALF-LOADING LEVER SPRING	62	4822 522 32501	TAKE-UP LOADING GEAR
5	4822 403 53512	HALF-LOAD DRIVE LEVER	63	4822 403 53829	TAKE-UP LOADING ARM ASS'Y
6	4822 492 70059	HALF-LOAD RECIPROCATING SPRING	64	4822 522 32499	SUPPLY LOADING GEAR
7	4822 403 53511	HALF-LOAD RECIPROCATING LEVER	65	4822 403 53828	SUPPLY LOADING ARM ASS'Y
8	4822 492 70052	AZIMUTH SPRING	66	4822 464 50819	MAIN CHASSIS ASS'Y
9	4822 249 10371	AUDIO/CONTROL HEAD ASS'Y	67	4822 401 11196	TENSION BAND ASS'Y
10	4822 462 71543	RETAINING GUIDE CAP	68	4822 403 53553	TENSION SPRING HOOK PLATE
11	4822 466 10565	AUDIO/CONTROL HEAD PWB	69	4822 492 70064	TENSION SPRING
12	4822 464 50731	AUDIO/CONTROL HEAD ARM	70	4822 403 53534	TENSION ARM ASS'Y
13	4822 492 42284	AUDIO/CONTROL HEAD ARM SPRING	72	4822 403 53832	TAKE-UP POLE BASE SLIDER
14	4822 464 50729	LOADING BLOCK HOLDER ASS'Y	73	4822 403 53827	TAKE-UP POLE BASE ASS'Y
15	4822 466 10596	LOADING BLOCK PWB	74	4822 528 90693	GUIDE ROLLER ASS'Y
16	4822 361 21158	LOADING MOTOR	75	4822 403 53831	SUPPLY POLE BASE SLIDER
18	4822 276 12663	CAM SWITCH	76	4822 403 53826	SUPPLY POLE BASE ASS'Y
19	4822 522 10405	WORM WHEEL	77	4822 462 30398	TAKE-UP LOADING RAIL
20	4822 528 50297	LOADING MOTOR PULLEY	78	4822 462 30399	SUPPLY LOADING RAIL
21	4822 358 30876	LOADING BELT	79	4822 528 90694	SUPPLY IMPEDANCE ROLLER INNOR
22	4822 522 10404	WORM ASS'Y	80	4822 528 90695	SUPPLY IMPEDANCE ROLLER FLANGE
23	4822 535 92515	WORM SHAFT	81	4822 528 81427	SUPPLY IMPEDANCE ROLLER
24	4822 522 32799	MASTER CAM	82	4822 249 40246	FULL ERASE HEAD ASS'Y
25	4822 403 53509	PINCH ROLLER LEVER ASS'Y	83	4822 466 10597	FULL ERASE HEAD PWB
26	4822 403 53513	RELAY SHIFTER LEVER	84	4822 462 71609	SUPPLY REEL RETAINER ASS'Y
27	4822 403 53508	REVERSE GUIDE	85	4822 358 30877	REEL BELT
28	4822 492 42283	REVERSE GUIDE SPRING	86	4822 403 53548	AUX. FAST FORWARD BRAKE LEVER
29	4822 361 60488	CAPSTAN D.D. MOTOR	87	4822 492 70069	AUX. FAST FORWARD BRAKE SPRING
30	4822 403 53516	SLOW BRAKE LEVER	89	4822 691 20353	UPPER DRUM ASS'Y
31	4822 492 70056	SLOW BRAKE SPRING	90	4822 464 50739	DRUM BASE
32	4822 492 70053	REVERSE GUIDE SPRING	91	4822 691 20478	LOWER DRUM ASS'Y
33	4822 403 53533	RELAY GEAR DRIVE LEVER	92	4822 290 80818	EARTH BRUSH ASS'Y
34	4822 403 53517	BRAKE SHIFTER	93	4822 361 60496	DRUM D.D. MOTOR ASS'Y
35	4822 535 92514	BRAKE LOCK SHAFT	94	4822 403 53302	HEATER ANGLE
36	4822 492 70051	ABSORBER PLATE SPRING	95	4822 209 72578	TRANSISTOR HEATER
37	4822 492 70055	VIDEO SEARCH SPRING	96	4822 321 60968	FULL FLAT CABLE
38	4822 403 53514	VIDEO SEARCH BRAKE LEVER	97	4822 321 60969	FULL FLAT CABLE
39	4822 403 53515	VIDEO SEARCH RECIPROCATING LEVER	99	4822 403 52542	DEW SENSOR
40	4822 281 50125	BRAKE SOLENOID ASS'Y	100	4822 267 40807	SOCKET, 5 PIN (MF)
41	4822 528 81242	TAKE-UP REEL DISK ASS'Y	101	4822 116 90456	220Ω, 1/4W, 5%
42	4822 522 32777	IDLER GEAR ASS'Y	102	4822 122 32397	0.001μF, 50V, 10%
43	4822 522 32498	REEL PULLEY	103	4822 111 90699	47kΩ, 1/16W, 5%
44	4822 492 42282	SHIFTER SPRING	105	4822 403 53519	TAKE-UP REEL DISK CATCH HOLDER
45	4822 403 53518	SHIFTER SPRING COVER	106	4822 532 81093	SUPPLY IMPEDANCE ROLLER FLANGE
46	4822 255 30209	CASSETTE LED HOLDER	110	4822 462 71611	SLOW BRAKE SHAFT CAP
47	4822 130 80994	CASSETTE LED	111	4822 403 53825	RELEASE PIN ANGLE ASS'Y
48	4822 214 32319	REEL SENSOR PWB	120	4822 691 20543	REEL UNIT ASS'Y
49	4822 130 82388	REEL SENSOR	121	4822 124 23501	22μF, 16V, 20%
50	4822 464 50728	REEL BLOCK CHASSIS	122	4822 265 30422	PLUG, 3 PIN
51	4822 403 53539	TENSION ADJUSTING LEVER	123	4822 267 51059	SOCKET, 8 PIN
52	4822 403 70193	TENSION RELEASE LEVER	124	4822 265 30419	PLUG, 2 PIN
53	4822 403 53537	BACK TENSION LEVER	131	4822 466 60979	SHIELD CUP
54	4822 492 70063	SPRING, FAST FORWARD	132	4822 321 61015	CONNECTING CORD
55	4822 528 81243	SUPPLY REEL DISK ASS'Y	180	4822 121 41271	0.01μF, 50V, +80% -20%
56	4822 492 70062	MAIN BRAKE SPRING			
57	4822 403 53541	INTERMEDIATE LEVER			
58	4822 403 53536	MAIN TAKE-UP BRAKE LEVER			

CASSETTE HOUSING CONTROL PARTS

300	4822 464 50817	CASSETTE HOUSING CONTROL ASS'Y
301	4822 464 50741	DOWN GUIDE
302	4822 276 12483	CASSETTE ERASE PROTECTION SWITCH
303	4822 464 50776	CASSETTE HOUSING FRAME (RIGHT)
304	4822 403 53859	CASSETTE COVER ARM A
305	4822 403 53861	CASSETTE COVER ARM B
306	4822 522 32506	PHASE GEAR
307	4822 492 70374	CASSETTE COVER ARM RECIPR. SPRING
308	4822 492 42286	DRIVE GEAR SRING (RIGHT)
309	4822 522 32504	DRIVE GEAR (RIGHT)
310	4822 492 70065	RECIPROCATING SPRING
311	4822 522 32503	WORM WHEEL GEAR
312	4822 403 53522	WORM BRACKET
313	4822 520 10666	BEARING
314	4822 403 53547	OPEN LEVER
315	4822 492 42289	OPEN LEVER SPRING
316	4822 403 53546	SWITCHING LEVER
317	4822 492 70067	SWITCHING LEVER SPRING
318	4822 535 80789	WORM SHAFT ASS'Y
318-1	4822 522 32507	WORM
318-2	4822 535 80789	WORM SHAFT
318-3	4822 528 20623	CLUTCH
318-4	4822 528 20624	COUPLING
319	4822 403 53545	CLUTCH LOCK LEVER
320	4822 492 70066	CLUTCH LOCK LEVER SPRING
321	4822 403 53544	CLUTCH RELEASE LEVER
322	4822 492 70058	CLUTCH RELEASE LEVER SPRING
323	4822 403 53543	CLUTCH LEVER
324	4822 528 50298	PULLEY
325	4822 358 30878	CASSETTE LOADING BELT
326	4822 403 70188	UPPER PLATE
327	4822 464 50737	SLIDER HOLDER (LEFT)
328	4822 492 41391	CASSETTE SPRING
329	4822 403 53524	SLIDER LOCK (LEFT)
330	4822 492 70068	SLIDER LOCK SPRING
331	4822 464 50738	SLIDER
332	4822 403 53542	LOCK RELEASE LEVER
333	4822 492 42291	LOCK RELEASE LEVER SPRING
334	4822 462 71546	SLIDER LOCK COVER
335	4822 403 53523	SLIDER LOCK (RIGHT)
336	4822 464 50736	SLIDER HOLDER (RIGHT)
337	4822 522 32505	DRIVE GEAR (LEFT)
338	4822 492 42287	DRIVE GEAR SPRING (LEFT)
339	4822 464 50777	CASSETTE HOUSING FRAME (LEFT)
340	4822 535 92516	MAIN SHAFT
341	4822 214 32327	END SENSOR PWB
342	4822 130 32491	PHOTO-TRANSISTOR
343	4822 214 32683	START SENSOR PWB
344	4822 214 32583	CASSETTE SWITCH
347	4822 267 40879	SOCKET, 5 PIN

CASSETTE HOUSING CONTROL PARTS

348	4822 209 82282	TRANSISTOR
349	4822 130 42277	TRANSISTOR
350	4822 116 52244	15 k Ω , 1/8W, 5%
351	4822 116 52257	22 k Ω , 1/8W, 5%
352	4822 116 52233	10 k Ω , 1/8W, 5%
353	4822 116 52283	4.7 k Ω , 1/8W, 5%
354	4822 116 52269	3.3 k Ω , 1/8W, 5%
355	4822 124 21916	0.047 μ F, 25V, 20%
356	4822 321 23633	CONNECTING CORD
357	4822 403 70187	MAIN PWB SUPPLY ANGLE
401	4822 502 12986	CUT WASHER (4.2W-6.0-0.5)
402	4822 502 13153	SCREW (B TIGHT BTN3P+6S)
403	4822 502 13695	SCREW 2.6P+4S

FIXING MATERIAL

201	4822 505 11001	ADJUSTING NUT
202	4822 532 52045	WASHER W2.6S-6-0.5
203	4822 532 11831	E-RING-2
204	4822 502 13165	AC HEAD SCREW
205	4822 502 13155	AZIMUTH ADJUSTING SCREW
206	4822 502 13148	TILT ADJUSTING SCREW
207	4822 505 10938	ADJUSTING NUT (A/C HEAD)
208	4822 532 11136	WASHER W3.1-5.4-0.5
209	4822 532 52038	WASHER W2.6-6-0.5 (LM)
210	4822 502 13158	SCREW C2.6P+6S
211	4822 532 11127	E RING-3
212	4822 532 52044	WASHER PSW4.6-6-0.25
213	4822 505 11079	ADJUSTING NUT (X-POSITION)
215	4822 532 52039	WASHER CW2.7-7-0.5
216	4822 530 70456	E RING-1.2
217	4822 502 13394	SCREW S2.6P+3S
218	4822 502 13393	SCREW 2P+3S(S TIGHT)
219	4822 532 11126	E RING-2.5
220	4822 532 52043	WASHER W2.6-5-0.5
221	4822 532 52041	WASHER W2.6-5-0.13
222	4822 532 52042	WASHER W2.6-5-0.25
223	4822 502 13151	SCREW W2.6P+6S
224	4822 502 13149	SCREW WSW2P+11S(W5)
225	4822 502 13154	SCREW M2X4
226	4822 502 13159	SCREW C2.6P+8S
227	4822 502 13364	B TIGHT SCREW C2.6P+8S
228	4822 502 11783	SCREW C3P+8S
229	4822 532 52037	WASHER CW2.5-6-0.5
230	4822 502 13161	B TIGHT SCREW 2P+6S
231	4822 502 11842	SCREW W3P+9S-NI
232	4822 502 13694	SCREW SW3P+10S-6W
233	4822 502 11761	SCREW SW3P+8S
234	4822 502 13156	SCREW SW2.6P+12S
235	4822 502 11755	SCREW SW3P+5S
236	4822 502 11757	SCREW SW3P+6S
237	4822 502 13365	SCREW S3P+6S
238	4822 530 70455	E RING-3 (CURL)
239	4822 532 52039	WASHER CW2.7-7-0.5
242	4822 532 52065	WASHER W2.6-5-0.4
244	4822 502 12488	SCREW C3P+4S
245	4822 503 11001	SCREW 3P+4S-N1